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Australian GEOGRAPHIC

JANUARY – FEBRUARY 2025

IT'S IN OUR NATURE

Octopus brains

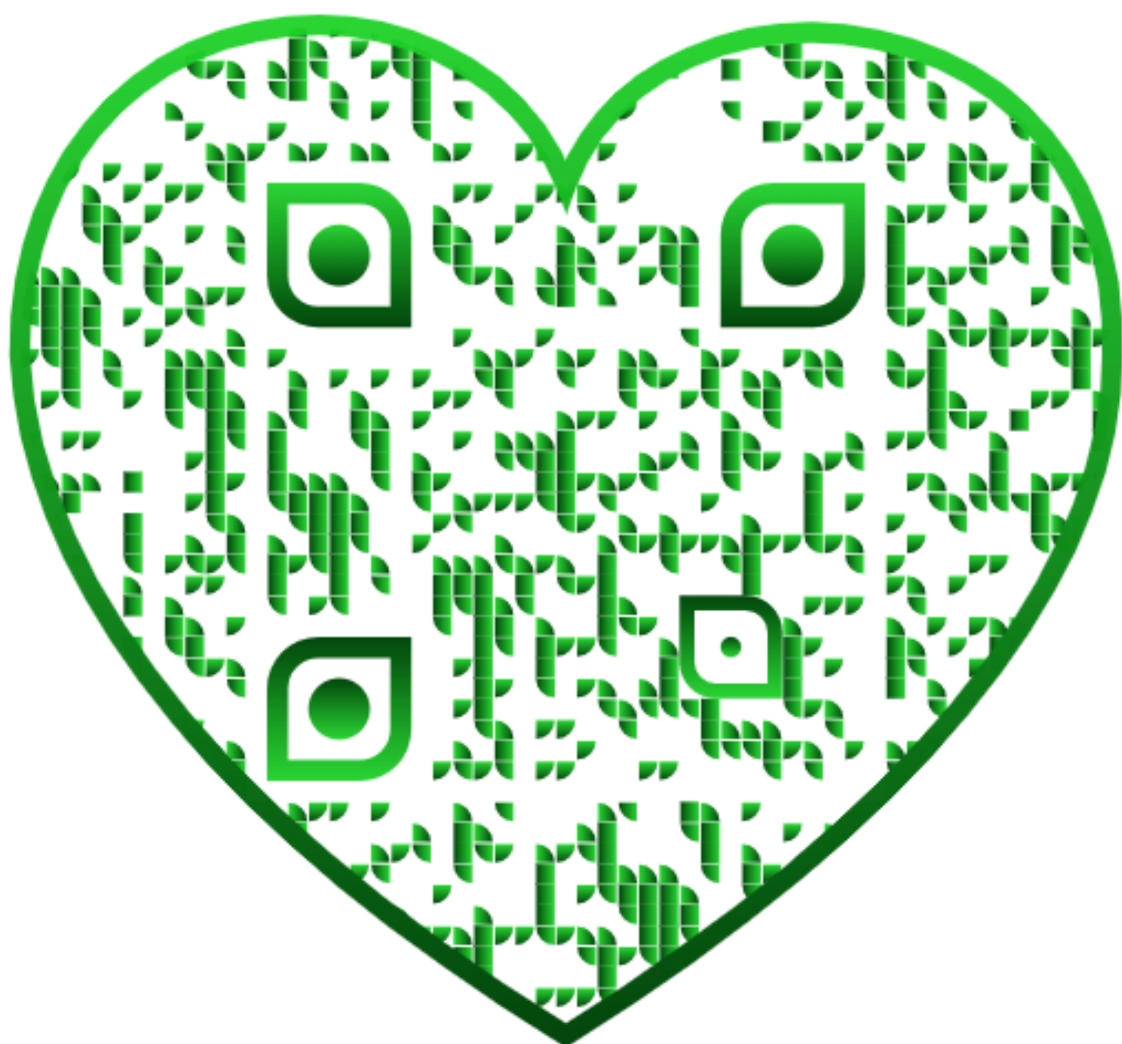
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SPIDERS**
A REMARKABLE
RESCUE

**INTENTIONAL
LIVING**
OLD ANSWER FOR
A NEW REALITY

**FIRE
ANTS**
OUR LATEST
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TOP 5 OF OUR UNIQUE TASSIE EXPERIENCES

2.



Wineglass Bay

Nothing quite prepares you for the drama of Freycinet National Park. Take it all in over lunch, cruising this brilliant blue ocean, admiring perfect coves carpeted with golden sand. This *Tassie Getaway* tour won't disappoint.

Mount Gnomon Farm

Farmer Guy Robertson and his family have perfected a century's worth of skills in cider orchards and gardens. Your farm-to-fork lunch is like Tassie in a flavourful mouthful. That's why we call this tour *Perfect Tasmania*.

3.



4.



Iron Creek Bay Farm

Expect seclusion staying on this working farm in Sorell on the *Tassie Getaway* tour. Sample fruits while wandering 70 hectares of orchards, enjoy wine from the vineyard and dine on local produce on-site before retreating to your stylish accommodation.

Josef Chromy Wines

You can't leave Tassie without sipping a few Tamar Valley cool-climate wines. Sample the range and settle in with your favourite drop enjoyed over lunch before your next delightful stop on *Tassie's Parks and Nature* tour.

5.



1. Bridestowe Lavender Estate

A century ago, a London perfumer paused to plant French lavender. Today, you can visit this charming site on *Tassie's East Coast Highlights* tour. Walk the fields, sample oh-so-memorable lavender ice cream and visit the lavender distillery.

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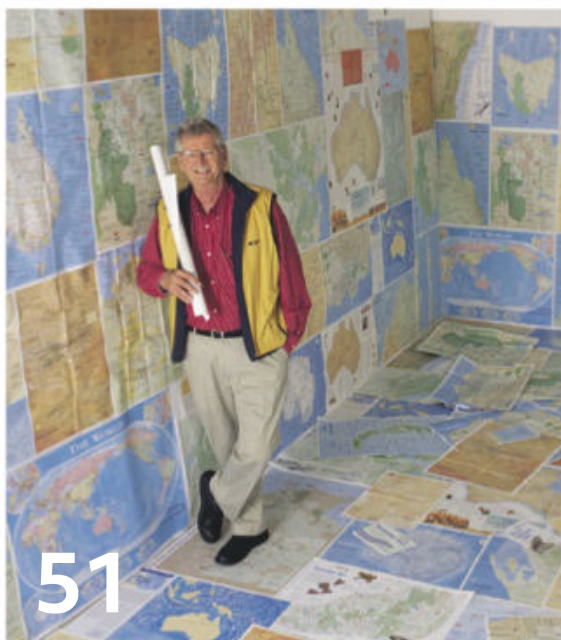
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Find out where
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Special note: Members of First Nations communities are warned that this edition of AUSTRALIAN GEOGRAPHIC may contain images and names of deceased people.

ON OUR COVER

Sheree Marris captured this image of a pale octopus in the waters off Rye on the Mornington Peninsula, Victoria. Cover retouching by Tammy White.



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Spineless wonders



IT'S NOT OFTEN we give so much space to our invertebrate fauna. But in this issue, the pages you'd usually see brimming with vertebrates – think cuddly marsupials, charismatic birds, big-eyed frogs and captivating reptiles – are full of fascinating content about the spineless creatures we share this country with.

Underwater photographer and writer Sheree Marris, who shot our engaging cover, dives deep into octopus intelligence (page 72), revealing the extraordinary cognitive capabilities of these multi-armed molluscs. It's still early days in terms of research, but what we could learn from these underrated intellectual giants is potentially massive.

Your feelings about spiders are bound to be challenged when you read our story about a year-long pursuit to rescue a population of trapdoors south of Perth in Western Australia. The arachnid species in this feature are long-lived, with a lifespan almost rivalling that of humans. Our writers present them as sentient beings worthy of deep respect and the article is likely to shift any negative perceptions you may have about these large, hairy creatures. Importantly, the writers – both with strong ties to Country in WA's South West – sought the approval of Elders to be able to share fabulous insights into the connections between these ancient species and First Nations people.

As usual, we also cover a current topic of environmental concern. This time, in keeping with our loosely invertebrate-themed issue, it's our story on red imported fire ants (page 46). So far, these introduced pests have been contained to Southeast Queensland, but these invaders are a potentially devastating threat to our economy, lifestyle and native fauna.

As we embark on a new year full of promise, I'd like to also bring your attention to the tribute article on our long-time cartographer, Will Pringle (page 51). Will rang me at the beginning of the production cycle for this issue and said, "Kaz, I've decided to retire". Will was 80 years old and had been unwell for a few months. He and I had the sort of loose arrangement that you grant to a wise and distinguished luminary like Will; that he'd keep working until he decided that he didn't want to. Sadly, I knew what his call meant, and he passed away within weeks. He's dearly missed in this office and will be for a long time but, even more importantly, his extraordinary talents as a cartographer remain a national legacy.

PS: Subscribers may notice they've received our first collector's edition, with the glorious cover image uncluttered by words. Let us know your thoughts and if you'd like this to continue.

AG subscriber benefits

IF YOU ARE a subscriber to AUSTRALIAN GEOGRAPHIC you are automatically a member and supporter of the Australian Geographic Society. From 2023, 100 per cent of profits goes towards supporting scientific and environmental research, conservation, community projects and Australian exploration and adventure.

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AUSTRALIAN GEOGRAPHIC acknowledges that its offices are located on land for which the Gadigal people of the Eora Nation are the Traditional Custodians. We remember all Aboriginal ancestors with respect, and commit ourselves to working for reconciliation and justice for Indigenous people.

▲ GEOBYTES

IT'S BEEN AN unforgettable few months for the AG Digital team, as we discovered the way researchers are using tadpoles to ensure cane toads never grow up, met the ocean's tiniest dolphins and the doggie squad that detects them, and chatted to academics who got Australian sea lions to help out with their research!

It was also bittersweet as we filmed our

last Ask An Expert episode – but we ensured it was memorable as Dr Kylie Cairns joined us to discuss dingoes. Scan the QR code to watch the episode now; you'll be sure to learn a lot from her!

CHARLIE DAVID PAGE
AG Head of Digital Content



▲ NOTES FROM THE FIELD



At home underwater

THE OCEAN HAS always been a muse for **SHEREE MARRIS** (above), inspiring a career brimming with adventure, discovery and storytelling. “Growing up on Victoria’s Mornington Peninsula, I spent my childhood exploring mangroves, rocky reefs and sandy shores,” she says. “My natural curiosity deepened when I began volunteering with dolphin researchers in Port Phillip Bay.” This experience set her on the path to becoming a marine biologist, award-winning author and science communicator. Her impressive career and passion for marine wildlife made her the natural choice for this issue’s cover story, *Serious sea smarts* (page 72). For that she joined world-renowned octopus expert Dr Wen-Sung Chung on Queensland’s North Stradbroke Island, diving deep into the mysteries of octopus intelligence.

“Photographing wildlife underwater is extremely challenging,” Sheree says. “You’re wrangling your dive gear,

camera equipment, shifting conditions and a wild animal that sees you as a potential threat – but the results are worth it. Capturing the octopus cover shot took patience, trust, and persistence. Over five dives, I returned to the same den, waiting for the octopus to feel safe enough to emerge. Each day, it emerged a little more until I captured this image.”

Sheree’s work has taken her across the globe, covering topics as diverse as box jellyfish research on the Great Barrier Reef, to empowering communities in the Philippines to protect their marine resources. Her latest book – *Octopuses: Underwater Wonders* – was inspired by an encounter with a stranded mother octopus guarding her eggs.

“My happy place is definitely underwater,” Sheree says. While she dreams of gills and a mermaid tail, for now she’s content sharing the ocean’s magic with the world.

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FEATURED LETTER

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I work in early childhood education and have taken my copies of AUSTRALIAN GEOGRAPHIC into the centres I work in. I mainly work with children aged three to five years of age and together we look through each copy. It has been a way to spark questions about our landscapes and our native wildlife. These lines of enquiry have led us down paths of research and projects where we learned together about Australian habitats and the adaptations animals have to survive. Our most exciting moment was reading the update on the platypus! [AG 177 and 179]

I have so much more to say but will leave it there. Thank you for creating a beautiful layout on each page, making it easy to read and interpret for the everyday person and such beautiful photos that make you want to read every word.

Madelyn Gibson, Hunter Valley, NSW

Platypus researcher

Dr Tahneal Hawke shares a tender moment with an animal caught in the Snowy region and being considered for inclusion in a project to reintroduce the species to the Royal National Park south of Sydney.



PARROT PRAISE

Gee, another great edition. The last was good; this one [AG 183] is even better. Loved the night parrot story [Geobits]. These night parrots need a serious helping hand now.

I wish that this whole country would take eliminating feral cats more seriously. They destroy more than one million little creatures every night.

David Ede, Magnetic Island, QLD



The night parrot is among those species highly vulnerable to the threat of feral cats.

WOOL OVER YOUR EYES

As I read *Australian merino wool industry begins* [Defining Moments, AG 183], it reminded me of a paper I wrote for my 'General Studies' HSC exam in 1971. I waffled on (in youthful ignorance) for many pages, espousing the importance of Australia's wool industry. Some 50 years later, I read articles such as this with a touch more enlightenment and a degree of sadness. For, what is not told about our wool trade's beginnings are the millions of hectares taken from Indigenous people with no treaties, agreements or payment – simply stolen from them.

As David Marr so succinctly put it in his book *Killing for Country*: "... the Legislative Council (of which Macarthur was a member) of NSW (1829–43) stayed sunk in the politics of the past, impervious to change and unwilling to hinder the



Today Australia produces more than half of the world's merino wool.

conquest by settlers and sheep of Aboriginal lands because the council members by early 1840 ... held a million acres of their own ..."

I wonder if the Australian Government has ever discussed giving reparation to Indigenous Australians for just this one (among hundreds of) miscarriage(s) of justice they experienced under colonial rule.

Matthew Marosszeky, Ontario, Canada

Write to us!

Send us a great letter about AG or a relevant topic to editorial@ausgeo.com.au or Australian Geographic, 52–54 Turner Street, Redfern NSW 2016. Please include an address and phone number. Letters will be edited for length and clarity.

If your correspondence is selected as our featured letter, we'll send you a \$50 gift voucher for our AG online shop. **Visit:** shop.australiangeographic.com.au

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WOOLLY HISTORY

Despite being an avid subscriber and reader of your magazine I was disappointed to see in the latest edition that the early development of our wool trade was exclusively attributed to John Macarthur and not his wife Elizabeth Macarthur in the article [Defining Moments, AG 183].

I thought that we now understand that Elizabeth Macarthur and a convict farmhand were in fact more responsible for this development, as John Macarthur was away in England for a good bit of the relevant time! This makes it not a "Defining Moment", more a "Misleading Moment"!!

Danina Anderson, Newport, NSW

most of the townsite subsequently went under water. In 2019–20, the dam was found to be unstable and the water level was lowered to 42 per cent of capacity. This year, it was decided to replace the entire dam with a new wall just downstream.

Rod O'Mara, Gladstone, QLD



Post Office Island in the Abrolhos group.

PARADISE LOST

In the November issue of AUSTRALIAN GEOGRAPHIC, I saw the article on "Paradise" in Tasmania and South Australia [Geobits, AG 183]. There is also one in Queensland, or was. It is on the Burnett River, west of Bundaberg, in southern Queensland. It was a goldmining town that lasted from 1889 to 1898. At its peak, it had a school of arts, a primary school and several pubs. The government built an irrigation dam on the site in 2003–2005. The University of Queensland did an archaeological dig on the site at this time, as

FACEBOOK FRIEND

After getting a notice yesterday on your Facebook page about this issue [AG 183], I ran to the newsagent and bought a copy. I have been showing it around because of the story of the Abrolhos islands from which I just returned, and the article about Darwin's 50th anniversary Cyclone Tracy celebration because I had been in Darwin just recently and viewed the exhibits at the museum. Congrats on a great issue!

Dee Farrell, Pearsall, WA

TALKBACK

Our audience learned about the lengthy process of prosecuting wildlife crimes after recent trials of people charged with deliberately killing protected eagles in north-eastern Victoria.



HERE'S WHAT YOU HAD TO SAY:

Gary Dargan

Studies show that eagles rarely take lambs. In sites where sheep are common, they will scavenge on dead ones but examination of their nest sites and pellets showed they mostly ate small native animals and in areas where there was a high rabbit population, rabbits were the main diet. So, they actually perform a service for the farmer.

@sockus

Wedgies go for non-viable stock typically which is the main point that's misunderstood. It's poor farming practices that are the bigger issue - farmers/pastoralists being unable to accept responsibility so they blame others.

Karin Welford

Same is done with native dingoes and all to protect an introduced species most humans eat.

@davidsessions63

Farmers will do to these eagles what they did to the thylacine.

Shez Good

Why don't they have companion animals with their lambs?

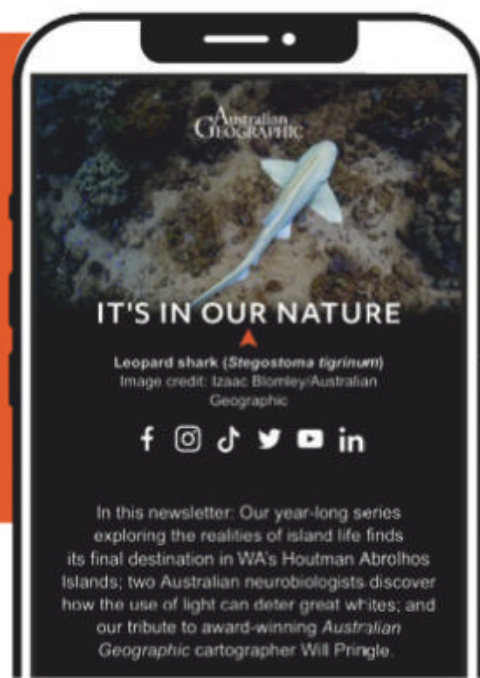
@rose711700

You'd imagine pastoralists, orchardists, etc. would possess the capacity to understand that if you clear habitat then 'provide' an alternative food source, animals are going to take advantage of it.

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GEOBUZZ

JANUARY – FEBRUARY 2025



BIG PICTURE

An ambush predator only found on Australia's East Coast, the eastern frogfish spends the day hiding below rocky ledges, only venturing out at night.

Photo by **Nicolas Remy**

A FACE TO LOVE

I MOVED TO Sydney from France seven years ago, eager to pursue my passion for underwater photography in the South Pacific. Since then, I've scuba dived almost weekly in the waters off Australia's biggest city and I'm constantly excited by what I see. Take, for example, the eastern frogfish (*Batrachomoeus dubius*). It's become one of my favourite photographic subjects because it's full of character, with large lips, raised eyebrows and a "beard" – a face only a mother could love! Before this, when I'd seen this species by day it was almost fully hidden – just its face peeking out watching for danger. This individual had its whole body exposed but it seemed relaxed and tolerant to my approach for a close-up shot, and I can think of two reasons why. First, it was at a location called Isolated Reefs (off Bare Island, near the Sydney suburb of La Perouse) which few divers visit. Second, I dive with a rebreather, which differs from standard scuba equipment in that it doesn't produce bubbles, is more silent and less intimidating to marine life.

NICOLAS REMY

Janet Koongotema's striking painting *Aak Chaim / Archer River Country* was selected as a finalist in the 2024 NATSIAAs.



Top First Nations art prize opens

Entries are now open for the annual National Aboriginal & Torres Strait Islander Art Awards (NATSIAA), Australia's longest running and most prestigious Indigenous art awards. Sponsored by Telstra, the awards are open to all Aboriginal and Torres Strait Islander artists across a range of categories including general painting, multimedia, bark painting and more. Entries close on 2 March 2025.

An exhibition of the finalists' artworks will be held at the Museum and Art Gallery of the Northern Territory from 21 June.

For more info: magnt.net.au/natsiaa-guidelines



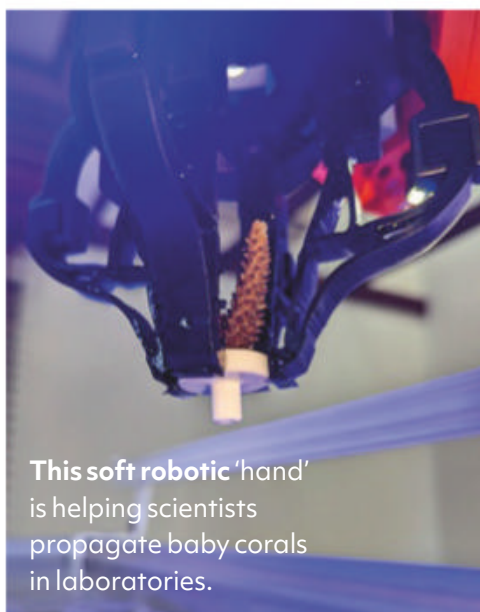
A helping hand in coral restoration

In a world-first, CSIRO scientists have developed a soft robotic 'hand' to assist coral propagation efforts in laboratories. This robotic hand – attached to a coral farming robot called CHARM – will partially automate the labour-intensive process of cultivating baby corals.

"Cultivating hundreds or thousands of baby coral colonies in the lab demands significant effort and precise handling," said Dr Josh Pinski, soft robotics scientist at CSIRO. "This gripper replicates the dexterity of a human hand, allowing it to handle delicate coral tissue without damaging it while being strong enough to lift various sizes. By automating this process, we can contribute to broader global efforts to scale coral farming and help restore the world's reefs." To prevent the hand corroding in salt water, the soft robotic hand was 3D printed from hard polymer and soft rubber.

CSIRO and the Beyond Coral Foundation want to roll out this technology in coral farms and aquariums across the world to increase coral production.

"The next challenge is placing the corals back in their natural habitat, and a well-designed gripper could facilitate the transition from growth to deployment," said Stephen Rodan, inventor of CHARM and president of the Beyond Coral Foundation.



This soft robotic 'hand' is helping scientists propagate baby corals in laboratories.



Stanley and Kaisa Breeden won the 2006 competition with this rainforest dragon photo.

Celebrate two decades of the Australian Geographic Nature Photographer of the Year!

The spectacular *20 Years of Australian Geographic Nature Photographer of the Year* exhibition, produced by the South Australian Museum, celebrates the remarkable flora, fauna and landscapes of Australia, New Zealand, Antarctica and New Guinea.

Don't miss this stunning exhibition at the National Archives of Australia, in Canberra. It runs until 27 April and is open daily 9am–5pm.

For more info:

📍 naa.gov.au/visit-us/events-and-exhibitions

Magnifying the microscopic past

Scientists studying the past at the microscopic level will soon have access to state-of-the-art technology at the Australian Microarchaeological and Palaeosciences Facility (AusMAP) at Flinders University. The AusMAP laboratory will support researchers working in archaeology, palaeontology and the geosciences by enabling the study of fossil, cultural and environmental materials at microscopic scales.

"This facility will enable us to uncover details that were previously beyond our reach, providing unprecedented insights into human history and environmental changes," said geoarchaeologist Associate Professor Mike Morley, director of the Flinders Microarchaeology Laboratory. "Building on the work of Flinders Microarchaeology Laboratory, the establishment of AusMAP and its new high-specification technology will take these [micro] analyses to unprecedented heights."

AusMAP will be the first laboratory of its kind in the world. This cutting-edge technology will offer new



The AusMAP laboratory will allow the 'micro realm' to be studied in greater detail than ever before.

insights into ancient ecosystems, cultural materials and more. "Microarchaeology is already being used by our team in groundbreaking research, from the extinction of the largest ever primate, *Gigantopithecus blacki*, to understanding the chemical environments that can preserve rock art, as well as reconstructing the environments of the earliest *Homo sapiens* in Southeast Asia," Mike said.



Fears for freshwater fish

Researchers across the country have published the first-ever comprehensive study into the extinction risk for Australia's native freshwater fishes. They discovered more than one-third of freshwater fish species – 37 per cent – face extinction. That includes 35 species not listed as threatened under federal environmental law such as salamanderfish, ornate rainbowfish and the long-nose sooty grunter. The researchers also concluded the Kangaroo River perch, endemic to the Kangaroo and Shoalhaven rivers of southeast NSW, is now extinct.

The study findings, which were published in the journal *Biological Conservation*, identified invasive fish species, modified stream flows and ecosystems, climate change and extreme weather events as the major drivers of decline.

To protect these fish into the future, experts want to update the national threatened species list to include all at-risk species, manage invasive species and create feral-free refuge sites.

It's also important to improve water quality and habitat and halt ongoing habitat loss.



Conservationists are calling for several freshwater fish species to be added to Australia's threatened species list, including the Utchee Creek rainbowfish, pictured here.

PLACENAMES

By Kel Richards

ARIAH PARK

IF YOU LIKE visiting small Aussie towns you might like to know about Arianh Park (population 268). It's a New South Wales Riverina town, 65km south of West Wyalong (along Burley Griffin Way). Arianh (pronounced 'area') Park is famous for its 1920s heritage village. The street front has been perfectly preserved – and looks exactly as it would have to someone arriving in the 1920s in a horse and buggy. A free 32-page booklet provides a self-guided



tour of the town, with the history and stories of the buildings and the area's connection to Dame Mary Gilmore. The town's name came from resident Sam Harrison, who purchased a portion of the Wellman Estate. The name he gave it, Arianh Park, is derived from an anglicised version of the word 'narriyar', meaning 'hot' – from the local Indigenous Wiradjuri language. So, it must have been a hot day in 1850 when Harrison chose the name!

WILD DIARY



NSW

WANDER AROUND A WETLAND

Celebrate World Wetlands Day on 2 February by immersing yourself in the natural beauty of Australia's wetlands. Yanga National Park and the adjoining Gayini Wetlands in southwestern NSW are well worth a visit, with viewing decks over the tranquil lakes offering spectacular birdwatching opportunities.

MORE INFO: visithemurray.com.au/products/yanga-national-park-gayini-wetlands

TASMANIA

MARVEL AT ALPINE WILDFLOWERS

This summer, visit Tasmania's high country to witness the colourful displays of wildflowers in full bloom. Ben Lomond National Park is the perfect destination to experience this stunning natural spectacle.

MORE INFO: parks.tas.gov.au/explore-our-parks/ben-lomond-national-park

WA

ENCOUNTER KILLER WHALES

Each summer, the largest pod of orcas in the Southern Hemisphere gathers at Bremer Bay Canyon to hunt. Get an up-close look at these apex predators by booking a whale-watching cruise.

MORE INFO: whalewatchwesternaustralia.com/tours/bremer-bay-orca-experience

Reporting turtle nest sites helps improve the chance of hatchlings reaching maturity.

NSW beachgoers on turtle watch

This summer, help protect sea turtles in northern New South Wales by reporting any nesting sites to NSW TurtleWatch or NSW National Parks and Wildlife Service (NPWS).

Sea turtles typically nest in Far North Queensland, but in recent years their nesting sites have become more common in northern NSW as temperatures rise due to climate change. Last season, TurtleWatch recorded 16 nesting sites from New Brighton Beach in Byron Shire to Diamond Beach on the Mid North Coast – the highest number since it was founded in 2019.

“In NSW, we are very lucky to have

both green turtle and loggerhead turtle species nesting on our coastlines,” said Merryn Dunleavy, project officer of NSW TurtleWatch. “Sea turtle nests are vulnerable to a range of threats, including predation, high tides and erosion. The sooner we are notified of a nest, the quicker we can get down to the beach and physically protect and monitor the nest until it hatches.”

Last year, NPWS’s marine wildlife team painstakingly relocated a loggerhead turtle nest carrying 139 eggs. The nest sat dangerously close to the king tide mark and was at risk of being washed away.

“It’s estimated that only one in every 1000 hatchlings will reach maturity, meaning every single nest and hatchling that is protected will make a huge impact on the survival of the species,” Merryn said. “With such a large expanse of coastline to monitor, we hope to engage more people to recognise and report turtle nesting activities. The more understanding we have, the more we will be able to ensure their protection in the future.”

If you spot marine turtle tracks or a nesting site at a beach, call NSW TurtleWatch on 0447 877 149 or NPWS on 1300 072 757.

History written in flames

Scientists from the Australian National University (ANU) and the University of Cambridge have uncovered the earliest-known evidence of fire management practices in Lutruwita/Tasmania, dating back more than 41,000 years. The researchers analysed traces of charcoal and pollen stored inside ancient mud taken from islands in the Bass Strait. The findings, published in the journal *Science Advances*, reveal Palawa/Pakana were burning forests and grasslands to create open spaces, possibly for cultural activities and food procurement.

“Palaeoecological records show that Palawa burned wet forest to first settle in Tasmania, as indicated by a sudden and unprecedented increase in charcoal accumulated in ancient mud 41,600 years ago,” said Professor Simon Haberle, ANU palaeoecologist and study co-author.

“Earlier studies have shown that Aboriginal communities on the Australian mainland used fire to shape their habitats, but we haven’t had such detailed and deep-time records from this part of Tasmania until now...These early Palawa communities were the island’s first land managers.”

Justice drive

In 1965, kids enjoying a summertime swim at a local pool in a small country town became a potent symbol of the fight against entrenched racial discrimination in Australia.

GLOBAL ATTENTION BECAME focussed on regional New South Wales during early 1965 when 30 University of Sydney (USYD) students – members of the group Student Action For Aborigines (SAFA) – set out on what was dubbed the Freedom Ride, through the towns of Walgett, Moree, Bowraville and Kempsey. This 15-day bus journey, inspired by the famed 1961 US civil rights Freedom Rides, aimed to highlight substandard living conditions for First Nations people and widespread racism in the state’s country towns.

Led by Arrernte man Charles “Charlie” Perkins, who was then one of only two Indigenous students enrolled at USYD, the ride’s actions enroute involved several highly publicised protests. These included the challenging of entry bans against Aboriginal ex-servicemen at Walgett’s Returned Services League Club and restrictions to Aboriginal children entering and swimming at public pools in Moree and Kempsey.

On 20 February 1965, Charlie and his fellow Freedom Riders attempted peacefully to enter the Moree swimming pool, where the local council had for 40 years been restricting access to Aboriginal people. After being denied entry, the activists set up in protest at the swimming pool’s gate.

Hundreds of local white Australians, including several community leaders, turned up in response, many of them pelting the protesters with eggs and tomatoes. After the

event was broadcast nationally, the local council initially dropped its ban on Aboriginal swimmers but within days had reneged on the decision and reinstalled it, sparking another protest.

The Freedom Ride gave Charlie a national profile and set him on a path to becoming one of Australia’s most respected and influential activists for Indigenous rights, which ultimately saw him assigned “living treasure” status by the National Trust.

In 1966, he became the first Aboriginal man to graduate from an Australian university, after which he went on to pursue a prestigious career in the Australian public service. In 1984, he became the first Indigenous Australian to head the Federal Department of Aboriginal Affairs and, in the 1987 Australia Day Honours, he was made an Officer of the Order of Australia for services to Aboriginal welfare. He became Dr Charles Perkins after being awarded an honorary doctorate of letters by the University of Western Sydney in 1998, after which he was also awarded an honorary doctorate of law by the University of Sydney.

Charlie had a kidney transplant during the 1970s and, at the time of his death from renal failure on 19 October 2000 at the age of 64, he was Australia’s longest post-transplant survivor. He was granted a state funeral, after which his body was returned for burial to his homeland near Alice Springs.

KAREN MCGHEE

Student Action for
Aborigines activists
protest outside the Moree
Artesian Baths on 20
February 1965 (right).

In response to national
media attention, the
local council temporarily
dropped its ban against
Aboriginal people
entering the pool, allowing
Charlie Perkins (opposite
page) and a group of
local Indigenous children
a short-lived opportunity
for a swim.







TIM THE YOWIE MAN

Baffling boulders

THE WAY AHEAD is blocked by an imposing jumble of jet-black boulders precariously stacked on each other. Beneath this is an eerie underworld of secret chambers where giant pythons and carnivorous ghost bats lurk.

It could be a scene from a horror film, but it's not. It's Kalkajaka (Black Mountain), a foreboding sight that rises from thick green jungle on the Trevathan Range about 25km south of Cooktown in Far North Queensland. Given its dominance in the landscape, it's no surprise this is a sacred place for the Kuku Yalanji people. One of their Dreamtime stories tells of an argument between two giant brothers who fight over a woman and throw huge boulders at each other until the mountain is formed.

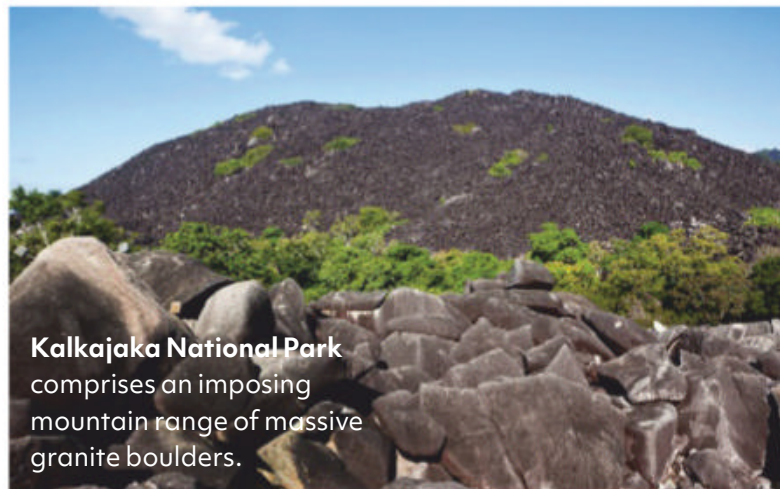
Geologists explain the striking mountain was created about 260 million years ago when molten rock slowly solidified deep below the surface, forming a body of hard granite rock. Over time, the fissured top of this has gradually become exposed as large rectangular blocks, their corners becoming progressively weathered into the boulders we see today. Its distinctively gloomy appearance is due to blue-green algae growing on the granite. This 'living skin' provides refuge for several curious creatures endemic to the area, including a nocturnal gecko (*Nactus galgajuga*), leaping skink (*Liburnascincus scirtetis*) and the Black Mountain boulder frog (*Cophixalus saxatilis*), which has developed an almost crab-like ability to scuttle on the granite boulders. Really!

Climbing Kalkajaka is discouraged by Traditional Owner groups, including the Kuku Yalanji, Guugu Yimithirr and Kuku Nyungkal. On my first visit here about 30 years ago, an elder warned me, "This is a very scary site, climbing it all the way to the top is asking for trouble, you may never

be seen again ... tourists should only venture high onto the mountains with permission and a local guide".

But not everyone heeds this advice and according to local legend there's a long list of people who've disappeared here since European settlement, including gold miners, police and a bushranger known as "Sugarfoot Jack". Then there's the case of two farmers in 1882 who, while searching for a mob of missing cattle, ventured into the labyrinth of caves created by the boulders. Apparently, they weren't seen again.

Official documentation of these supposed vanishings is hard to find, with some historians dismissing them as "wild stories" produced by "creative imagination and speculation". Despite the dubious nature of some of these stories, if the prospect of getting lost in a maze of subterranean dead ends doesn't deter you from clambering over the boulders, maybe the prospect of unexpected 'explosions' will. In her 1987 booklet *The Mysteries of Black Mountain*, author Maureen Kozicka quotes Bert Cummings, who used to live in the



Kalkajaka National Park comprises an imposing mountain range of massive granite boulders.

mountain's shadow. "In summer when the rock gets very hot, a sudden cool tropical downpour forces the boulders to contract. Occasionally the pressure is so great, a boulder will explode violently. You can hear it for miles ... like dynamite detonating. All those white powdery patches dotted over the mountain show where there's been an explosion."

Some claim that even on a calm day you can hear the wind whispering unnervingly through the boulders. Or are they muffled cries from a long-lost stockman? Who knows? But this giant pile of boulders has deservedly earned its moniker as our country's most mysterious mountain.

ASK AN EXPERT



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KOOKABURRAS

Take a stickybeak into the wonderful world of kookaburras with WIRES Volunteer and Kookaburra Co-ordinator, Stephanie Carrick. We put your questions to her on Ask An Expert – you'll be in a flap with some of these fantastic facts!

Supportive families

Kookaburras live in big families and support each other. Young birds typically leave the nest at about three years old, but hunt for food and provide defence from predators for a few breeding seasons.

Spot the difference

Male and female kookaburras look very similar, but there are some subtle differences. Males have a little blue colouring on their tails, while females tend to be slightly larger.

Taking it easy

Kookaburras – particularly fledglings – can spend days sitting on the ground. It doesn't always mean they're injured. But if you're worried, call WIRES on 1300 094 737.



Watch

Other episodes include ecologist **Dr Matthew McCurry** on dinosaurs and megafauna and wildlife scientist **Dr Vanessa Pirotta** on whales.

See: ausgeo.co/YTsub



TIM, a naturalist, author, broadcaster and tour guide, has dedicated the past 25 years to documenting unusual natural phenomena in Australia. His books include *Haunted and Mysterious Australia* (New Holland, 2018). Follow him on Facebook and [X @TimYowie](#)

Mungo's aerial acrobats

Australia's native swallows are adept fliers, superbly adapted to catching their tiny prey on the wing.

AS I WAS coming up the rickety steps of the Zanci Homestead dugout in Mungo National Park several years ago, something slapped me in the face and squeaked. My head snapped up to see, 10cm from my face, a welcome swallow (*Hirundo neoxena*) defending its nest site. I was definitely not welcome!

Zanci is a relic of a pastoral industry that farmed sheep in what is now protected as national park. The original house burnt down long ago, leaving only outhouses and a dugout cut into the ground as a coolroom for food and to provide protection against the furnace that is Mungo's summer. You used to be able to walk down the steep wooden slab steps into the darkness of the dugout, feeling the heat reduce as you descended underground into this pre-refrigerator space. But recently the NSW National Parks and Wildlife Service erected mesh over the doorway at the bottom of the steps to stop people entering the dugout.

Welcome swallows have been building mud nests in the dugout for many years and would have been surprised by the obstruction but have got around it by flying straight through the 20cm openings in the mesh. And that's why one, on its way back to the nest, ended up in my face. Its angry squeak was saying "this gig is hard enough without you getting in the way".

Another majestic aerial acrobat of Mungo is the white-backed swallow (*Cheramoeca leucosterna*), which lives and nests in an entirely different environment to its welcome cousins. My first encounter with them was high in Mungo's eroded sand dunes, when one poked its head out of a hole I was inspecting at the side of a dune. Once again I heard that angry squeak saying "get away from my nest". I learnt that these little aerialists become terrestrial to dig their nesting burrows – each up to a metre long – into hard sand, to raise their chicks. How such tiny birds – adults grow to a length of about 15cm – manage this is beyond comprehension.

On most days at Mungo you'll see these spectacular pied



The welcome swallow (formerly *Hirundo frontalis* now *H. neoxena*), (top) and the white-backed swallow (bottom), are agile fliers that use remarkable skills to catch insect prey on the wing.

heroes hurtling over the ancient burial sites of the people, and the animals and plants, for which Mungo's Walls of China are famous. These birds add an air of lightness to this enormously significant place, where the world's oldest human burial was found.

Swallows are miraculous. Next time you see one, take time to watch it weaving through the sky hunting insects. To me, they're the ultimate masters of the air; they revel in it, dancing about from dawn until sundown, landing only to preen before launching again into the ether to catch prey we can't see.

But don't get in their way, they'll tell you off!



ROGER SMITH has a long background in nature conservation, citizen science, wildlife tourism and energy-efficient housing. Now, as Director of Conservation Travel at Australian Geographic Travel, his role is to oversee citizen science activities, implement a climate-action plan and help expand the Conservation Travel portfolio.

EARTH VIEW PERSPECTIVE

Nature target shortfalls

The recent COP16 biodiversity conference in Colombia was a chance to check on targets aimed at rescuing the world's threatened plants and animals.

IN 2022, AUSTRALIA and 195 other countries pledged to halt and reverse the decline of biodiversity. The resulting agreement, the Kunming-Montreal Global Biodiversity Framework, included the '30x30 target' – to protect at least 30 per cent of land, inland waters and oceans, have at least 30 per cent of degraded ecosystems under effective restoration, and halt human-induced extinction of known threatened species, all by 2030. Australia, with its many unique species, high rate of extinction, and real opportunities to protect and repair nature, has an important part to play.

The recent COP16 UN Biodiversity Conference in Cali, Colombia, was the chance to finalise unresolved items and check on the progress of those targets.

So, what were the outcomes? Australia and 43 other countries submitted full national biodiversity strategies and action plans (NBSAPs), which detail how a country will tackle biodiversity loss, and 119 countries submitted 2716 National Targets aligned with the 2022 framework.

In a significant outcome, the parties established a subsidiary body expected to enhance the engagement and participation of indigenous peoples and local communities in all processes under the Convention on Biological Diversity. This should enable more inclusive and better decisions for nature.

The breakthrough decision for establishing the scientific process for identifying ecologically or biologically significant marine areas (EBSAs) was welcome.

A new financial mechanism – the 'Cali Fund' – for sharing benefits from Digital Sequence Information (DSI), was established. This is an important move to address how pharmaceutical, biotechnology, animal and plant breeding, and other industries that benefit from genetic sequences from plants, animals, or microorganisms, should share those benefits with developing countries, indigenous peoples and local communities.

Now for the not-so-good news.

Australia was not among the eight governments who pledged an additional US\$163 million to the Global Biodiversity Framework Fund. This additional pledge



Colombia, which contains more bird species than any other nation, including this crimson-rumped toucanet (*Aulacorhynchus haematopygus*), was a fitting location for UN Biodiversity COP16.

brought total funding to about \$396 million – a long way short of the global commitment to mobilise at least US\$200 billion annually from all sources by 2030.

In a bizarre turn of events, the COP was forced to end abruptly without key decisions being agreed upon. As the discussions dragged on, country representatives left to get flights home, resulting in a lack of a quorum to vote. As a result, key issues were left unresolved: there was, for example, no agreement on a monitoring framework to track progress on global goals, and no adoption of a comprehensive finance strategy to meet those goals. The parties left deeply divided over a new fund to finance biodiversity.

Outside of the negotiations, sessions on biodiversity credits and markets were the hottest ticket in town, and Australia's emerging Nature Repair Market was constantly referenced as an early adopter.

Data released at the COP showed 17.6 per cent of Earth's terrestrial and inland waters and 8.4 per cent of marine and coastal areas have been protected. This means we need to act urgently if we want to meet the 30x30 target. A session I convened at the COP highlighted many countries that are making progress. But in order to scale up our efforts, we need deep change around both funding and policy. In a promising step on funding, a new coalition of NGOs, including The Nature Conservancy, was announced to scale climate and conservation outcomes through the use of sovereign debt conversions.

Clearly, COP16 did not deliver all that was hoped for. And yet we simply don't have time to stall. If we're going to halt and reverse biodiversity loss, we need to ramp up the progress on our global targets and commitments. This means continuing the pragmatic, consistent work on policy and funding for nature. In both these areas, Australia needs to and can demonstrate leadership.



DR JAMES FITZSIMONS is senior advisor, Global Protection Strategies with The Nature Conservancy; Adjunct Professor, School of Life and Environmental Sciences, Deakin University; Adjunct Professor, School of Law, University of Tasmania; and a councillor on Australia's Biodiversity Council.

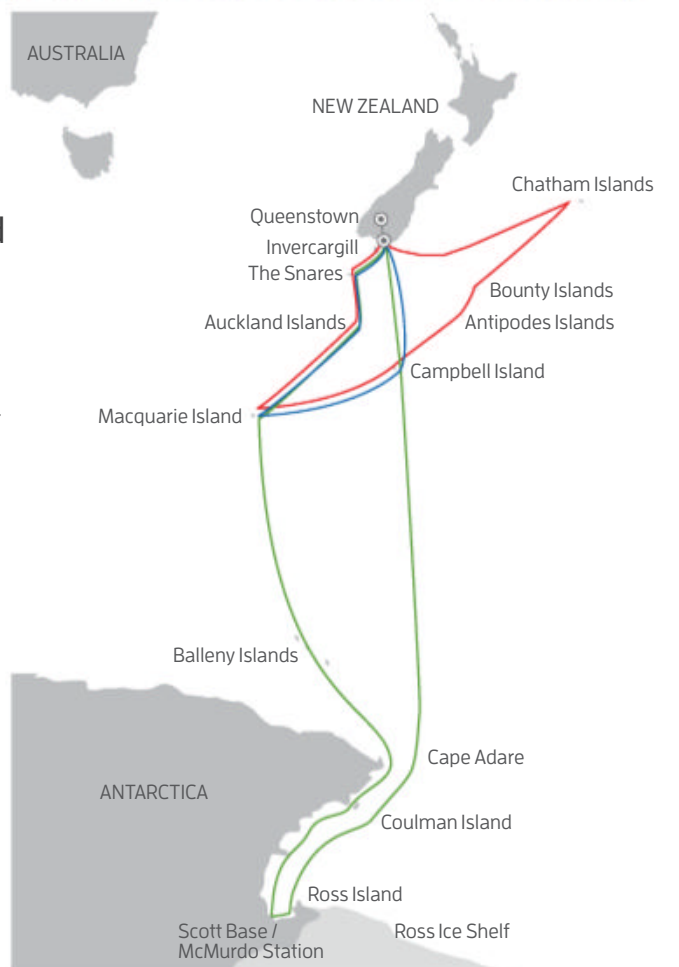
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A Stonehenge puzzle solved

ONE OF THE many mysteries of Stonehenge – where its Altar Stone came from – has recently been solved.

The huge sandstone blocks known as sarsens in the prehistoric structure's outer ring are each about 4m high, 2m wide, weigh about 25 tons, and came from about 26km away. The smaller bluestones of basalt in the inner ring, are each 1–3t in weight, up to about 2.5m tall and came from 240km away.

But the origin of the Altar Stone – 5m long and 6t in weight – has been a mystery. Due to modern sensitivities, it's no longer possible to drill into the Altar Stone to fully analyse it. However, in the past, several pieces were chipped from various stones at Stonehenge.

Australian scientists from Perth's Curtin University worked out a non-destructive method using X-ray fluorescence to identify which samples were identical to the Altar Stone. And bingo, a museum sample from 1884 was a perfect match!

The scientists were allowed to do intensive, and destructive, testing on a tiny amount of this sample. It perfectly



Construction of the famed prehistoric stone structure known as Stonehenge – located on Salisbury Plain, in the English county of Wiltshire – proceeded in several phases beginning about 5000 years ago, during the Neolithic period.

matched rocks from a site in north-east Scotland, some 750km away.

Transporting it by land would have been difficult because of the terrain and its many forests, while a sea journey would have posed other problems. It's not impossible to move these stones – just laborious and time-consuming. In 1995, a team of some 100 workers managed to push and pull a wooden sleigh carrying a 40t slab of stone some 29km cross-country, on a track greased with animal fat.

Unfortunately, the builders who made Stonehenge left behind no written or oral

records. Maybe Stonehenge had a ritual or religious significance, or to worship an ancestor.

We do know that some of the stones are aligned to the sunset of the winter solstice and the sunrise of the summer solstice. Perhaps it was a way of declaring to farmers that the seasons were definitely on the turn and it was time to get planting. Maybe Stonehenge was just astronomy giving agricultural advice. After all, in contrast to Rene Descartes' precept of "I think, therefore I am", the motto of the scientist is "I think, therefore I get paid".



DR KARL is a prolific broadcaster, author and Julius Sumner Miller fellow in the School of Physics at The University of Sydney. His latest books are *Dr Karl's Little Book of Climate Change Science* and *A Periodic Tale: My Sciencey Memoir*, published by HarperCollins Publishers Australia. Follow him on X @DoctorKarl and TikTok @DrKarl. **More info:** drkarl.com



OZ WORDS

By Kel Richards

GOT A QUESTION ABOUT AUSSIE ENGLISH?

Contact Kel at:
ozwords.com.au

BLUEY

THIS LITTLE AUSSIE word has now conquered the world! The great American Merriam-Webster dictionary recently listed "bluey" as one of its "words worth knowing". And it's because of the brilliant, animated TV series of that name created by Joe Brumm. It features a family of blue heeler cattle dogs living in Brisbane in a classic old 'Queenslander' house, and the imaginative games Mum and Dad play with their small children, one of whom is named 'Bluey'. Bluey of course is one

of those Aussie words with lots of meanings. As well as 'blue cattle dog' it can mean anyone with red hair, or a parking ticket, which were once issued on blue paper. It can also mean a swagman's swag (rolled in a blue blanket), or even one of those stinging bluebottles that wash up on the beach. Brumm says he wanted to give his kids' show "Brisbane values", showing the influence of a supportive family. Plus, it's a great Aussie word to share with the world!



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Lucy Barnard and her canine companion 'Wombat' take a break beneath Mexico's fourth-highest peak, the Nevado de Toluca volcano, about 110km south-west of Mexico City.

Photo by Sofia Navarette Zur

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DEFINING MOMENTS

IN AUSTRALIAN HISTORY

Brisbane founded

1825 Brisbane begins as the Moreton Bay Penal Settlement

IN 1817, BRITAIN'S Colonial Secretary, Henry Bathurst, 3rd Earl Bathurst, raised concerns that transportation to New South Wales was no longer a deterrent to the "criminal class". Word had spread of convicts' successes in the new land, especially during Governor Lachlan Macquarie's 1810–21 term. Bathurst suspected transportation was no longer seen as a punishment short of hanging, but an option with some appeal. In 1819, he commissioned John Thomas Bigge to report on how transportation to NSW could be made a more effective deterrent.

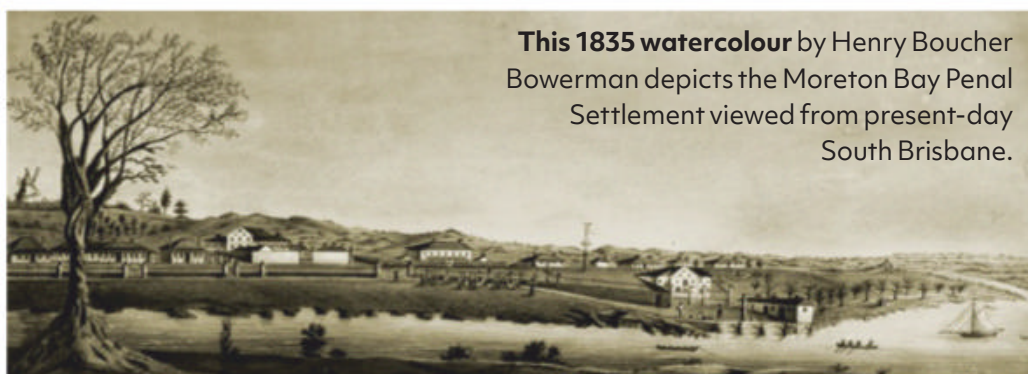
Bigge's reports made many detailed recommendations to restore "terror" to transportation, including the establishment of new penal settlements where recidivist convicts would face the harshest treatment. In response, Governor Thomas Brisbane instructed Surveyor-General John Oxley in 1823 to explore Moreton Bay as a suitable penal settlement site remote from Sydney and other European communities, making it ideal for exiling the "worst" convicts. James Cook had sailed past and named Moreton Bay in 1770. And in 1799, Matthew Flinders had spent 15 days navigating it, including landing at a site he called Red Cliff Point (now Redcliffe). Neither discovered the large river that emptied into the bay. In March 1823, 'ticket of leave' convicts Thomas Pamphlett, John Finnegan and Richard Parsons, whose boat had been blown out to sea, landed on Moreton Island in the bay. After receiving food, water, directions and possibly canoes from First Nations people, they continued their journey on the mainland, planning to walk to Sydney. In mid-June they came across a wide river which they followed upstream for several kilometres – the first European encounter with the Brisbane River.

On 29 November 1823 Oxley, who was beginning his Moreton Bay survey in HMS *Mermaid*, found Pamphlett and Finnegan on the beach at Point Skirmish, Bribie Island, while Parsons was hunting. After hearing their account of a large river, Oxley's party set out on 1 December to investigate, with Finnegan as a guide. They found the mouth of the river, which Oxley named after Governor Brisbane, rowed some 80km upstream, and returned to Sydney on 6 December to report that Redcliffe Point was a suitable penal settlement site. On 12 September 1824, the *Amity* arrived at Redcliffe with 54 passengers, including Oxley, Lieutenant Henry Miller (Moreton Bay Penal Settlement's first commandant), botanist Allan Cunningham, and about 30 convicts. Within months it was clear Redcliffe Point wasn't suitable for permanent settlement, and a decision was made to

relocate to the banks of the Brisbane River. As Surveyor-General, Oxley had been tasked with finding a settlement location and on his Brisbane River surveys he'd favoured two sites – near present-day Breakfast Creek and Milton – but no moves were made to establish a settlement at either.

In May 1825, Commandant Miller and pilot John Gray decided to select the Brisbane Town site and found a suitable location a few bends up the river from Breakfast Creek. By 1826, the Moreton Bay settlement had about 200 convicts, but Brisbane was little more than an encampment of rough slab and timber dwellings. The third commandant, Captain Patrick Logan, who in March 1826 replaced Captain Peter Bishop, who had a brief but ineffective term after Miller, began a public works program, replacing temporary structures with stone buildings. In about 1828, a windmill was built at Spring Hill to grind grains into flour. It had two sets of millstones: one powered by wind sails, the other driven by a treadmill to punish convicts, something Logan notoriously pursued with exceptional brutality. As per Bigge's recommendations, Moreton Bay convicts suffered particularly harsh treatment; required to labour from dawn until sunset with misbehaviour punished by being fettered with leg irons, receiving up to 150 lashes or enduring time on the treadmill. Convicts in leg irons commonly worked the treadmill in shifts of up to 14 hours.

In 1827, Allan Cunningham became the first European to discover the fertile Darling Downs, west of Brisbane. Despite



This 1835 watercolour by Henry Boucher Bowerman depicts the Moreton Bay Penal Settlement viewed from present-day South Brisbane.

colonists' desire for new land, more than 10 years passed before squatters occupied a run on the Downs.

Moreton Bay Penal Settlement acted as a brake on European development because no one was allowed within 80km of Brisbane without special permission. As a result, farmers faced problems selling their produce in Brisbane, or purchasing supplies. From the 1830s, would-be landowners, entrepreneurs and merchants from Australia's south asked the colonial government to open all of Moreton Bay to free settlers. The government didn't need much convincing. The cost of maintaining and guarding the penal settlement had already prompted it to recommend abolishing the convict colony. Convict numbers were reduced from 1837, and in 1839 the government appointed a surveyor to map the area around Moreton Bay, in preparation for free settlement. On 10 February 1842, the Moreton Bay Penal Settlement was formally abolished. Queensland, with Brisbane as its capital, became a separate colony in 1859.



Part of the Defining Moments in Australian History project
TO FIND OUT MORE: nma.gov.au/defining-moments

SPACE

A ringed planet Earth?

ASK ALMOST ANYONE which planet has rings around it, and you'll get the answer "Saturn", especially if they've ever viewed it through a telescope. But not many people know that the other gas giants in our Solar System – Jupiter, Uranus and Neptune – also have rings, although they're much fainter than those of Saturn. Now, a group of Earth scientists at Melbourne's Monash University have asked the question "Did Earth ever have a ring?" And surprisingly the evidence they've uncovered points to an intriguing "yes".

Their work took them to an era 466 million years ago called the Middle Ordovician, when our planet was subjected to a high rate of bombardment by meteorites and asteroids. We know this from the large number of craters that remain, and from asteroid debris that has been found in sedimentary strata across the Eurasian continent.

Until now, scientists had assumed this material came from a large asteroid that broke up in the main asteroid belt between the orbits of Mars and Jupiter, with the resulting fragments eventually



Researchers have found evidence suggesting Earth may have had a ring system, which formed around 466 million years ago, at the beginning a period of unusually intense meteorite bombardment known as the Ordovician impact spike.

finding their way to Earth. But a closer investigation reveals a different story.

Whenever we look at the history of our planet over even relatively short timescales, we must include the drift of continents by tectonic activity. We can now reconstruct this movement back to well over a billion years ago, so we know where the continents would have been in the Middle Ordovician.

It turns out that at that time, all the impact craters studied were scattered around the equator, which would not be expected if material had bombarded the Earth directly from the asteroid belt. Instead, the scientists argue, the concentration of impacts close to the equator was probably the result of a ring of debris that had originated in the

gravitational disintegration of a large asteroid on a near-miss trajectory. A similar disintegration is believed to have led to the rings of Saturn, and, like those, the Earth's ring would eventually have dissipated due to debris falling down to the planet, which explains the impact craters around the equator.

The Monash scientists have one additional piece of circumstantial evidence for the ring's existence. Around the same time as the craters were formed, the Earth began to cool, eventually entering an ice age. Could that cooling have been due to the shading of the planet's surface by its ring? Further research will be needed to answer this tantalising question.



FRED WATSON is Australia's Astronomer-at-Large. Find him on ABC Radio, the weekly Space Nuts podcast and on X @StargazerFred. His latest book for young people (and the young-at-heart) is *Spacewarp: Colliding Comets and Other Cosmic Catastrophes* (NewSouth, 2021).

PHOTO CREDIT: ARTIST IMPRESSION BY OLIVER HULL/MONASH UNIVERSITY

Looking up by Glenn Dawes

Patterns of stars are called asterisms. They are quite random and don't necessarily follow any constellation(s) but can help you navigate the sky. The northern evening sky has one of the smallest, distinctive examples – Orion's Belt. Look for three close bright stars in a straight line that can be covered by your outstretched thumb. Above (south of) the belt is the bright

star Rigel. It also forms the upper left corner of the much larger Winter Hexagon asterism. Going anticlockwise (down) from Rigel is Aldebaran in Taurus. Below is the lowest member – Capella in Auriga. Next, moving to the right are the Gemini twins, Castor and Pollux. Then shoot up to Procyon – Canis Minor – and finish on its highest component, Sirius – Canis Major.



Full Moon
Tuesday
14 January



New Moon
Wednesday
29 January



Full Moon
Wednesday
12 February



New Moon
Friday
28 February

15 JANUARY 2025



Mars makes a close approach!

When the Earth passes between an outer planet and the Sun, the planet is at opposition. Mars reaches this point in mid-January. Although not as favourable as some oppositions, it still appears double its typical size. Even using a small telescope, you may glimpse some shadowy features on Mars, noting the location of a polar cap, valleys, plains and mountains. Even the unaided eye sees the planet considerably redder and brighter than normal, rivalling the brilliance of the brightest star, Sirius. Watch Mars approach and pass the Gemini stars, Castor and Pollux in the northern sky.

GLENN DAWES is a co-author of the yearbook *Astronomy 2024 Australia* (Quasar Publishing), which can be purchased from Australian Geographic. australiangeographic.com.au

OCEAN WARRIOR

This English-born marine scientist has stepped up to become a leader in the fight to safeguard the world's reefs.

Emma Camp pauses on the rocks at Gordons Bay, Sydney, after a snorkel at one of the Harbour City's most popular dive sites.



DR EMMA CAMP doesn't remember exactly when her love of the ocean began, just that it's always been part of her. She does, however, very clearly recall what sparked her passion for coral reefs.

She'd travelled, at the age of eight, with her parents from their home in Essex, England, to the Caribbean. "I saw a coral reef there for the first time and fell in love," reflects Emma, now leader of the Future Reefs Program at the University of Technology, Sydney (UTS). "I remember not being able to see the reef from above the water, putting on my mask, and then seeing this vibrant 'city' under there, with all these little yellow fish." She couldn't wait until she was old enough to learn to scuba dive.

But her career path to become a global leader in the fight to preserve and protect reefs has been rather convoluted. "Younger scientists ask me, on panel events for example, what [study] did I take and how did I get here," Emma says. "I've had a very meandering path, but I've always worked hard to put myself out there and network. I don't think things just happen; you lay the foundations for them to happen."

When Emma was young, her mum, Frances, was always a guiding light. "She was a great inspiration – very resilient and a real fighter," Emma recalls. "I definitely take that from her. I think as a scientist you need to be resilient, especially at the moment with all the challenges we face."

Sadly, Frances succumbed to breast cancer when Emma was aged just 18 and her father, Peter, has since been her strongest support and influence. "Ever since I was little, he's always told me to say, 'I can and I will' and that 'can't' is not in our language," she says.

SO HOW DID Emma build a career that took her from suburban Essex to Sydney, where she's become a key protagonist in the fight not just for Australia's own Great Barrier Reef (GBR), but the world's coral reefs?

Unusually, it began with her aptitude as an elite athlete. Being a talented basketball player who'd represented Great Britain and England internationally, Emma was accepted after high school into a basketball scholarship in the US. There she pursued an undergraduate degree majoring in environmental science and chemistry at a small university college – Belmont Abbey College, in North Carolina. During her first semester, she visited a research station in the Turks and Caicos, a small tropical archipelago nation located south of the Bahamas, where she saw scientists working to preserve a reef. "I learned through that study abroad

program not only about the value of reefs, but also the threat they were under," Emma recalls. "It was the first time I really understood there was a risk coral reefs could be lost within our lifetime due to human impacts and I realised I wanted to do something about that."

She returned to England, landed another basketball scholarship and completed a master's degree in environmental management and business at Sheffield Hallam University, her dissertation focussing on coral reefs. "I ended up going to Florida [in the US] where I worked with the diving industry to look at the impact scuba divers were having on coral reefs," she says. "I was particularly interested in how conservation briefings telling divers about the importance of a reef affected their behaviour and interaction with it."

In the late 2000s it was again back to England, where the worst recession since World War II was gripping the nation and it was hard to find work in environmental management. With the encouragement of her dad, Emma set up her own consultancy company performing environmental and energy audits for the housing industry, "just to do something in the environment space", and to earn a living.

Then she heard from a colleague in Florida about a job opportunity at a research station in the Cayman Islands, in the Caribbean. "I applied, they offered me the position during the interview and said they wanted me there the following week," Emma says. "I was torn because I felt I'd finally started to get some money and independence through the consultancy. But it wasn't my passion."

The answer came again from dad Peter. He pointed out she could always return to environmental consultancy. "But 'this', he said, 'was a once in a lifetime opportunity'," she recalls.

The three-month Cayman Islands contract developed into a 12-month commitment when the research station secured funding to investigate the impacts on coral reefs of changing ocean chemistry. She was invited to lead the project, which also provided an opportunity to pursue a PhD in coral reefs, but which required her to find university supervision.

Again, her dad was key. "He saw something in a newspaper about the University of Essex Coral Reef Research Unit," Emma says. Securing PhD supervision there "meant that when I went back to England I could stay with my family and continue doing what I needed to do at university".

It was the first time in her career she had a firm idea of the path she wanted to follow and, at its core, the intent was simple – help rescue the planet's coral reefs before it's too late. ►



“There have been decades of research and researchers telling society and governments that reefs are under threat,” Emma says in frustration.

EMMMA ARRIVED IN Australia in 2016 to take up a fellowship under the Endeavour Leadership Program, a former federal government initiative that brought leading researchers to Australia for short-term study with the purpose of developing international ties between the nations involved. She planned to stay for only six months but met her husband, Rawiri Heke, a New Zealander, here, became an Australian citizen and the pair had a son, Tāne, “a COVID baby” in mid-2020. Tāne has already been to Australia’s GBR several times and has seen bleached coral (a consequence of a warming planet) and knows what it means: “Nemo is losing his home because the anemones are turning white.” The couple are expecting a daughter in May.

In terms of professional inspiration, Emma’s biggest influence has been legendary US-based oceanographer and marine biologist Dr Sylvia Earle. Now aged in her 90s, Sylvia was, from 1990 to 1992, the first female chief scientist of the US National Oceanic and Atmospheric Administration (NOAA) and in 1998 was named *Time Magazine’s* first “Hero for the Planet”. “Our paths have now crossed multiple times and I think she’s fantastic – not just because of what she’s achieved, but *when* she achieved it,” Emma says of Sylvia, who was kicking goals as a young scientist in a very male-dominated world. “To lead NOAA at a time when she would have been the only female scientist in the room every time is just inspiring to me.”

Emma has also been motivated by Sylvia’s achievements as a communicator of science. “Often, as individual scientists, we’re not always great at explaining the challenges we’re working

One of the proudest moments of Emma’s career was when she won Australia’s 2021 Eureka Prize for Outstanding Early Career Researcher.

on,” Emma says. “And yet, if we don’t do that, I think we’re failing as scientists, because the problems are too big for us to solve alone. We need society to understand what’s going on and Sylvia has done an amazing job of embracing that.”

Academically, Emma says, it’s been her PhD supervisors – Professors David Smith and David Suggett – and now her supervisor Professor Peter Ralph, who’ve played the most enduring role in her career and shaped her as a scientist. Notably, the two Daves, as she calls them, and Peter confirmed the value of communication in science and to always look for the practical application of her work. They have encouraged her, for example, to repeatedly ask how the science she is undertaking can be related back to communities or to the wider society in a valuable way. “That’s shaped the sort of scientist I’ve become and how I run my lab,” she says.

Emma has either received or been nominated for dozens of awards during the past decade, including being named, in 2018, as a Young Leader for the UN’s Sustainable Development Goals, in 2020, as a STEM Women’s Game Changer by the Australian Academy of Science and, in 2023, a winner of the prestigious WINGS WorldQuest Women of Discovery Award.

She says one of the proudest moments of her career was when she won Australia’s 2021 Eureka Prize for Outstanding Early Career Researcher. But, in terms of the broader opportunities it’s brought, she adds that acknowledgement from global watchmaker Rolex has been particularly significant. She won the 2019 Rolex Award for Enterprise and was named an Associate Laureate for the company, which has also provided her with ongoing support under its Rolex Awards for Enterprise initiative.

So, what’s next for this conservation Amazon? “To ensure there are reefs for future generations,” is the simple answer, Emma says. “There have been decades of research and researchers telling society and governments that reefs are under threat. This is not new information. There are leading Australian scientists who’ve been shouting this from the rooftops for a really long time, and yet there’s been no meaningful action, because the answer has got to be addressing climate change...ultimately, the biggest threat to reefs is the climate stress they are facing.”

And that’s why the message coming from her UTS lab is so important. “It’s my goal to continue in this role, to lead the next generation of scientists because ultimately, as an individual you can do very little,” Emma says. “But if we can share that knowledge with the next generation that’s how we amplify impacts.”

For more: ausgeo.co/gbr



Australian Geographic Awards Roadshow

with presenting partner



coralexpeditions
AUSTRALIA'S PIONEERING CRUISE LINE

The Great White Whale

with Michael Dillon

Deep in the Southern Ocean, halfway between Australia and South Africa, a 2745m-high snowy volcano, called Big Ben, rears up from Heard Island like a great white whale.

Five times it tried to kill the first team that attempted to climb it. Yet in 1964, back they sailed, through the worst seas in the world, to try again. Among the crew were legendary explorer Bill Tilman and past Australian Geographic awardees Warwick Deacock, Grahame Budd and Colin Putt. It's one of the least known yet most audacious Australian adventure stories of the 20th century.

Enjoy this rollicking film from respected adventure filmmaker Michael Dillon, of those first attempts to climb Big Ben, the smoking glacier-ringed volcano on Heard Island – Australia's loneliest, most remote outpost. It's a tale told with quirky humour by those who were there, backed up with their beautifully shot archival footage.

Michael will be with us on the night. After the film showing, you will have the chance to ask him questions in a Q&A session.



Sun Theatre (Barkly Theatre), 8 Ballarat Street, Yarraville, VIC 3013

Thursday 6 February 2025, 6.30pm–9pm

Tickets: \$30 or \$15 for full-time students

Book online now at suntheatre.com.au

GRAND PRIZE & BEST DIRECTOR, Mendi International Mountain Film Festival, Balboa 2023.

BEST EXPEDITION FILM & ITALIAN ALPINE CLUB AWARD Trento International Mountain Film Festival 2024.

BEST FILM Sestriere Film Festival 2024. AUDIENCE AWARD Cervino Film Festival 2024.

All proceeds go towards the Australian Geographic Society

YOUR SOCIETY

Highlights from the AG Awards for Nature

The Domain Theatre at the Art Gallery of New South Wales was the elegant setting for the inaugural Australian Geographic Awards for Nature event on 17 October last year when we announced three winning projects that shared in a funding pool of \$100,000 (see full story in AG 183).

We were thrilled to welcome Rachel Ward as guest presenter and to have the opportunity to view her wonderful documentary *Rachel's Farm*. A renowned actor, writer and producer, Rachel is a passionate advocate for the need to embrace new ways of farming to enhance, rather than damage, the natural environment. She and husband Bryan Brown employ regenerative techniques on their farm on the NSW Mid North Coast, and they drove to Sydney on the day to be with us.

It was also great to hear from leaders of each of the organisations that received funding. Dr Dean Miller from Great Barrier Reef Legacy travelled from Cairns to receive the gold award of \$50,000. He spoke passionately about the need for independent, innovative conservation efforts to receive this kind of critical support. He won funding for the Forever Reef Project, a coral biobank. The funding will help them to run a scientific expedition to collect more corals. We're also exploring the potential of an AG Society citizen science voyage to the reef in November/December 2025 in partnership with the Forever Reef Project and our long-time supporters, Coral Expeditions. Keep an eye on these pages to find out more, and make sure you are signed up to our weekly digital newsletters, where unique travel opportunities like this one are listed.

Our 2025 Australian Geographic Awards for Nature Expressions of Interest (EOI) period is open from 6 January to 21 February 2025. Any qualifying organisations (those that fulfil all stated criteria) can submit an EOI in the form of a one-sided A4 sheet summarising their project. The 2025 information pack will be available from 6 January 2025.

Visit our brand new AG Society website to download it australiangeographicsociety.org or email the Society administrator on society@ausgeo.com.au



Rachel Ward (above) with Dean Miller of Forever Reef and Judy Friedlander of B & B Highway. Left: Grace Nye-Butler and Michelle Cameron of Tangaroa Blue Foundation. Below left: Tim Silverwood of Take 3 for the Sea, John Wamsley and Proo Geddes. Below right: Rachel answers audience questions. Bottom: Jeff Gillies of Coral Expeditions, Dick Smith and Chrissie Goldrick.



CHRISSIE GOLDRICK

Chair, Australian Geographic Society
cgoldrick@australiangeographic.com

OUR MISSION AND VISION

The Australian Geographic Society is a not-for-profit that supports Australian individuals and organisations leading the way in nature conservation, scientific research, public education aimed at positive environmental outcomes, and the advancement of human knowledge through exploration. It's our vision to foster a community of well-informed, passionate Australians who are committed to finding solutions to the multiple threats facing our natural world.

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**Who are the Australian
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The Australian Geographic Society is a registered charity. All donations are tax-deductible. Please consider leaving a bequest in your will. Contact the administrator on society@ausgeo.com.au for details.

CONSERVATION NEWS

Chuditch update

In July–August 2024, with your help, we raised \$10,298.17 for chuditch (western quoll) conservation through our Australia's Most Endangered program for our conservation partner Australian Wildlife Conservancy (AWC).

AWC has now reached an important milestone in a decade-long Mammal Restoration Project at Mt Gibson Wildlife Sanctuary on Badimia Country in Western Australia's Wheatbelt.

A sixth and final cohort of the threatened chuditch was recently released at the sanctuary, marking the last planned translocation in an ambitious reintroduction program that aims to return 10 locally extinct native mammal species back to the Wheatbelt.

"It is incredibly exciting to reach this significant milestone," says AWC Regional Ecologist Dr Amanda Bourne. "This final release of chuditch at Mt Gibson is the culmination of nearly 15 years of planning, preparation and conservation translocations in what has become an extremely impactful million-dollar-a-year conservation program."

The final group of 12 chuditch was translocated from Taronga Western Plains Zoo in Dubbo, NSW, where they were part of Taronga Conservation Society Australia's successful chuditch captive breeding and ex-situ conservation program.

The animals had a stopover at Native Animal Rescue near Perth, where AWC ecologists recorded images of each quoll's unique spot pattern to develop a recognition system that can be used to identify and monitor individuals.

On arrival at Mt Gibson, eight individuals were fitted with VHF radio tracking collars which will be tracked using a drone with an advanced radio-telemetry system.

"It's really special," said Darryl Fogarty, Badimia Elder. "Our old people would have walked with chuditch so it's good to see them back again. It means a lot to have them out here again."

**Australian Geographic raised
more than \$10,000 for chuditch
conservation in 2024.**



Thousands more 'hope trees' planted

In November–December 2023, the Society raised funds for Bangalow Koalas and a year on, the NSW-based community group has used the donations to move closer to a monumental milestone.

Since 2019, Bangalow Koalas has been on a mission to get 500,000 'trees for hope' in the ground by the end of 2025 as a response to the fact that, without positive action, koalas are at risk of disappearing.

To date, the \$12,000 has helped plant more than 12,000 trees across six different sites in northern NSW.

Significantly, one of these trees marked Bangalow Koalas' 400,000th tree planting milestone, in September 2024.

"Habitat saves koalas, and planting trees creates habitat," says Bangalow Koalas President, Linda Sparrow, Australian Geographic Society's 2022 Conservationist of the Year. "We



are so grateful to everyone who donated to the Society's fundraiser, as every tree we plant not only brings us closer to our 500,000 goal, it's also another link in the wildlife corridor we're creating to join existing patches of koala habitat together."



AUSTRALIA'S MOST ENDANGERED FUNDRAISER

Don't let the tale end! Save the bridled nailtail!

THE BRIDLED NAILTAIL wallaby (*Onychogalea fraenata*) is one of two living nailtail wallaby species. The other is the northern nailtail wallaby (*O. unguifera*), which occurs in northern Queensland and the Northern Territory. The crescent nailtail wallaby (*O. lunata*) was declared extinct in 1956. Nailtails are named for the 3–6mm nail-like projection at the end of their tails. "Bridled" refers to the white bridle line that starts on the centre of the neck, extends around the shoulders and ends at the forearms each side. A black stripe runs dorsally across the whole body. Before European settlement, the bridled nailtail was widespread, its range extending west of the Great Divide, from the semi-arid areas of central Queensland, through NSW and into northern Victoria. Early European explorers frequently reported sightings and regarded it as common. But by 1929, the species had almost disappeared. With no confirmed sightings for more than 35 years, it was believed extinct. Then, in 1973, a small population was rediscovered on a grazing property near Dingo in central Queensland. That property,

plus an adjoining one, became Taunton National Park (Scientific) in 1992. It's still the only known wild population, but translocated ones are now present in Idalia NP and Avocet Nature Refuge in Queensland. In NSW, the species has been reintroduced to Pilliga State Conservation Area and Mallee Cliffs NP by NSW National Parks working with AWC. An insurance population has been established at AWC's Scotia Wildlife Sanctuary. The Pilliga population, originally 42 individuals, has more than doubled since its 2019 reintroduction to a 680ha feral predator-free fenced area it shares with bilbies. The growing population is monitored annually across the 5800ha fenced area and each year a healthy proportion of females have pouch young. Eight females checked in the survey had young in the pouch – good news for the species' ongoing success. It's hoped a new, bigger fenced area can be developed in the Pilliga. We invite you to help us to provide vital funds to this conservation program to secure the future of the bridled nailtail wallaby. Donations can be made throughout January and February.



Donate to our Australia's Most Endangered bridled nailtail wallaby campaign by scanning the QR code, or visit:

🔥 shop.australiangeographic.com.au/products/help-save-the-bridled-nailtail-wallaby-donate-now

Intrepid filmmaker Michael “Mike” Dillon is the 2024 Lifetime of Adventure awardee.



ADVENTURE NEWS

We are thrilled to announce the 2024 cohort of adventure awardees (see full story, pages 36–40).

All are very worthy and inspiring winners of Australia’s longest running and most prestigious awards in the field of exploration and adventure. Congratulations to them all!

We hope you can get to meet them at live events during 2025 as many of you did in 2024. We’re starting early in 2025 with two live events, one with Lucy Barnard at the end of January in Sydney, and another with Mike Dillon (left) in early February, in Melbourne. So don’t delay and book early. Details below. All proceeds to the Australian Geographic Society.

AG AWARDS ROADSHOW IN PARTNERSHIP WITH CORAL EXPEDITIONS

The woman walking the world

Lucy Barnard is walking from the southernmost tip of South America to the northernmost extreme of North America. This epic trek began in 2017 and today Lucy is making her way north through the USA. Lucy will be in Australia for a short visit in January 2025.

Don’t miss the chance to see and hear from Lucy, our 2024 Adventurer of the Year, live on stage at this very special speaker event, in collaboration with Paddy Pallin.

Where: Main Theatre, Hayden Orpheum Picture Palace, 380 Military Road, Cremorne, NSW 2090

When: Thursday 30 January 2025, 7pm–8.30pm

Tickets: \$30, or \$15 for full-time students

Book online now orpheum.com.au/movie/lucy-barnard---the-woman-walking-the-world---qa



The Great White Whale Q & A Screening with Michael Dillon

This gripping film from Mike Dillon, AG’s 2024 Lifetime of Adventure awardee, captures the indomitable human spirit and sheer audacity of exploration!

Heard Island’s Big Ben – a smoking, glacier-cloaked volcano – is as remote and treacherous as it gets, and the 1964 expedition to climb it is truly legendary. Battling the unforgiving Southern Ocean and the relentless challenges posed by the island itself, the team’s determination showcases the essence of adventure.

Michael Dillon’s film, with its blend of humour, firsthand accounts, and archival footage, is an engaging tribute to those pioneering adventurers. It brings to life not just the extreme physical trials but also the camaraderie and resilience that drive explorers to attempt the near-impossible.

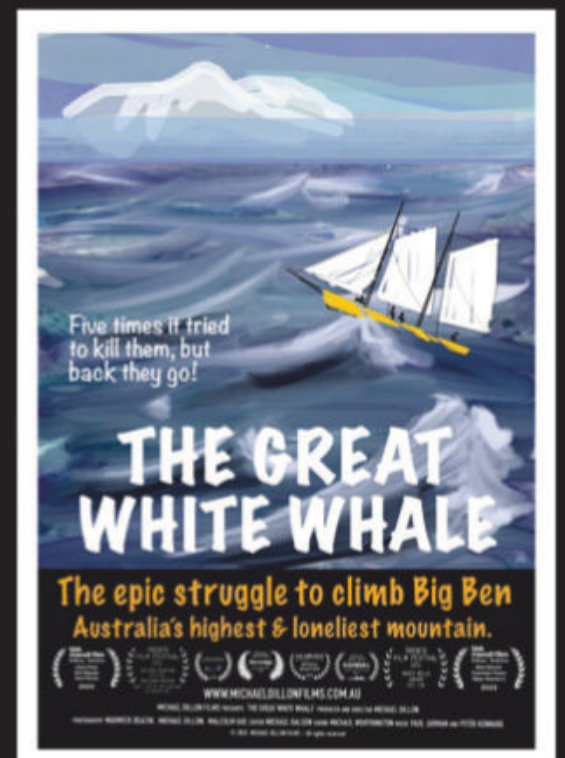
After the film showing, you will enjoy the chance to ask questions and hear directly from Michael himself.

Where: Sun Theatre (Barkly Theatre), 8 Ballarat Street, Yarraville, Melbourne.

When: Thursday 6 February 2025, 6.30pm–9pm

Tickets: \$30, or \$15 for full-time students

Book online now suntheatre.com.au



AUSTRALIAN GEOGRAPHIC ADVENTURER OF THE YEAR



WITH PRESENTING PARTNER CORAL EXPEDITIONS

STORY BY **CHRISSIE GOLDRICK**

Our 2024 Adventurer Awardees have undertaken journeys of discovery through remote lands and little-known cultures. Along the way, they gained a greater appreciation of nature and the resilience of the human spirit.

MICHAEL DILLON AM **LIFETIME OF ADVENTURE**

Michael 'Mike' Dillon is the leading adventure filmmaker and cinematographer of his generation.

WORDS USED TO describe Tim Macartney-Snape in a documentary about his 1990 Sea to Summit Everest expedition could just as easily apply to Michael Dillon, the cinematographer who went with him: "On Earth's flattest continent, he trains for Earth's highest mountains. In sweltering heat, he steels himself for snow." Many of the expeditions Mike has filmed are the stuff of legend. Among them is the 1984 first Australian summit of Everest by Macartney-Snape with Greg Mortimer, which celebrated its 40th anniversary last year (see *The Hardest Night*, AG 182). Less well known is Mike himself. This humble individual receives the 2024 Lifetime of Adventure award, the Society's highest honour, for a career spanning seven decades, shooting in some of the most inhospitable places on the planet.

Mike was seven years old when Edmund Hillary and Tenzing Norgay summited Everest on 29 May 1953. It was a monumental milestone that left a deep impression on the young boy growing up in Sydney. The two mountaineers became his heroes, especially after he saw the documentary *The Conquest of Everest* (1953) during his first-ever cinema experience. Every rock Mike climbed later as a Venturer Scout, and doing the Duke of Edinburgh's Award, he imagined as Everest. Little did he know that within 20 years he'd be able to count Sir Edmund and Tenzing among his close friends.

Mike credits his adventurous spirit and survival skills to

the Scouting movement. "I started with them at 13 and was very lucky to have a troop leader who really got the outdoor adventure side of Scouts going, starting rock-climbing courses," he says. "We'd go exploring down Blue Mountains' canyons and climb the Three Sisters and other places, which you can't do today."

His attainments as a Venturer Scout got him a head start in the Duke of Edinburgh's Award scheme, beginning at the silver level, when it was introduced to Australia in 1959 by Warwick Deacock. This seasoned mountaineer and former British marine and SAS commando first met Mike when the scheme was trialled at his school, Sydney Grammar. Inspired by Warwick, Mike found himself graduating to bigger adventures high in the Snowy Mountains. Warwick would later play an even more pivotal role in his life.

Mike was the first Australian to earn the Duke of Edinburgh's Gold Award. When Queen Elizabeth II and Prince Philip visited Sydney in 1963, Mike, accompanied by his family, was invited aboard the Royal Yacht *Britannia* to receive his award from the Duke. "I got my own personal ceremony. It was moored at Circular Quay, and we came on board for half an hour. We all got on very well. My dad was a naval officer like Prince Philip," Mike recalls.

Mike's passion for film was ignited by that Everest documentary he saw when he was a child. While he was at university, he found part-time work with a film company.



Mike poses with his first 16mm film camera and the gold medallion for his Lifetime of Adventure honour.

Sir Edmund had become fascinated with jetboats, a New Zealand invention, and he and his wife Louise had been planning a journey up the great river when she and their daughter Belinda were tragically killed in a plane crash in Nepal in 1975. “It was something that Sir Edmund felt he had to do,” Mike says. “It was a healing process for him. He was so devastated by their loss that he needed something to concentrate on, a goal. He was a great planner and spent a lot of those years after the accident planning this expedition.”

Mike joined his hero in 1977 on the thrilling journey from the Ganges Delta and up through fast-moving rapids into the snows of the Himalayas where the river rises. It can be deadly in places, and at one point during their journey Mike almost lost his precious camera after hitting a sandbank. Sir Edmund suffered severe altitude sickness and had to be evacuated but the expedition continued, with Mike capturing the excitement and action all the way to the peak of Akash Parbat. The film *From the Ocean to the Sky* was released in 1979.

So began a friendship with Sir Edmund that would last for the next 25 years. Mike filmed Sir Ed’s humanitarian work in the region where he’d built more than 30 schools and hospitals and was loved and respected by the Nepalese people. Mike took part in many of those building projects. In 2002 he co-founded the Australian Himalayan Foundation with five mountaineering friends who recognised the Himalayan region, while beautiful, also suffered extreme poverty and hardship.

It’s an initiative Mike’s proud of. “It’s expanded so much,” he says. “There are some quite well-known villages right under Everest, but we knew that if you just went further down the valley or over to another valley, there were still a lot of [communities in] need. And not just in that region, but in other parts of Nepal and across the Himalayas too. We’re very proud to have started something which is still going strong and doing important work.”

MIKE VERY MUCH admires the personal qualities of the Australian team that summited Everest in 1984. “They were all very self-contained, kind of introverted, with no egos, almost casually going about this task,” he says, comparing them with some of their more flamboyant European contemporaries. “There was this amazing dynamic, and lots of patience too. They just went about it all very slowly. They had lots of issues with avalanches and lost gear and so on, but somehow managed to do it.”

He could be talking about himself. He filmed the ascent as an integral member of the crew, along with Greg Mortimer, Tim Macartney-Snape, Lincoln Hall and others. Mike’s ability to be part of the expedition team, move at their pace, endure their hardships, all while wielding heavy gear, nailing perfect shots and keeping discreetly out of the way, is what makes him the ►

Warwick meanwhile had established a trekking company in the Himalayas and, after graduating in 1969, Mike joined him there on a film shoot for the ABC.

“Warwick had a 16mm camera, but he got altitude sickness and was carried down on a stretcher by the Sherpas,” Mike says. “But being Warwick, he carried on filming. So the Sherpas put him down and said, ‘We’re happy to carry you, but not you and your camera.’ The camera was handed to me. So that was the first time I used a 16mm camera.”

Two years later, Mike bought a second-hand 16mm camera from the production company that made *Skippy the Bush Kangaroo* and headed back to Nepal to film another trekking expedition led by Warwick. “It was quite hard work in those days because cameras were extremely heavy and you needed a tripod as well, plus a black bag to change the film in,” Mike says. “I was carrying a lot more than everybody else but having to keep up and film as I went along.”

The resulting film, *A Himalayan Journey*, was sold to the BBC. It was one of the first movies to be made about trekking in the region. It gave Mike the confidence to write to Sir Edmund Hillary, who was planning a major expedition up the Ganges River and was looking for a filmmaker to go along.

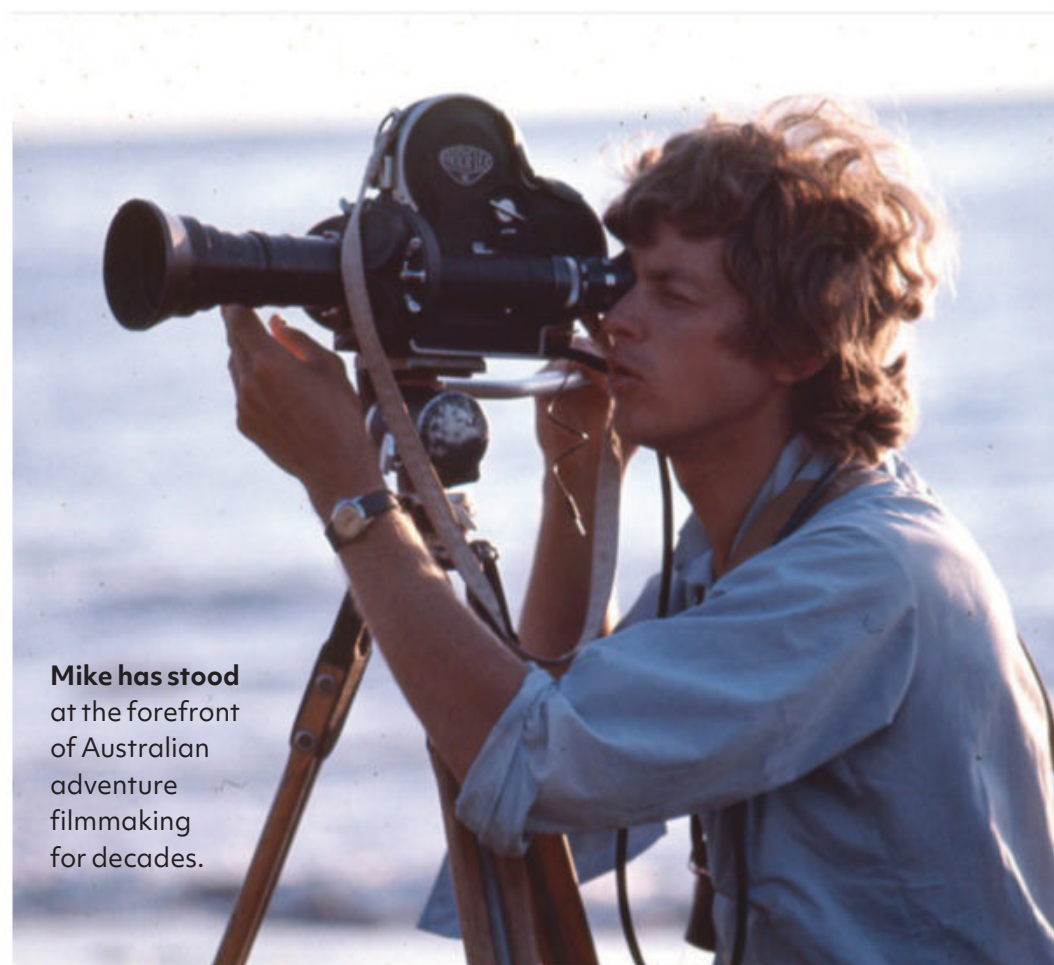
leading Australian adventure filmmaker and cinematographer of his generation.

He went on to conceive and film Tim Macartney-Snape's 1990 Sea to Summit expedition, in which Tim climbed Everest again, this time from sea level. Mike has great admiration for people like Tim who display true grit without seeking attention. Another quiet achiever, Tim Cope, invited Mike to film sections of his long ride across Asia, for which Tim received the 2006 AG Adventurer of the Year. "It was such a simple expedition; just Tim, his wonderful dog Tigon and three horses travelling through the beautiful Carpathians," Mike says. "I had to make sure I was ready to leave when he wanted to leave. I was walking all the time, while he was sometimes riding, so I had to carry my gear in a very efficient way so I could start filming immediately if something happened."

COVID provided Mike the chance to work on a project that had been on the backburner for years – and it involved his old friend Warwick Deacock. "I knew some years earlier he'd gone to Heard Island with his mates in a failed attempt to climb Big Ben [Australia's highest mountain at 2745m] but then went back and finally climbed it in 1965. I even helped them prepare their boat the second time down at Rushcutters Bay," he says.

Using Warwick's original footage, Mike's more recent material of Big Ben and interviews with the team members on the climb, he created *The Great White Whale*, a rollicking, boys-own adventure story filled with thrills, spills and good humour. It's won numerous awards and is touring the country to great acclaim. "It's nothing to do with me, really," Mike says. "It's more the ingredients; these extraordinary characters singing songs and telling their story."

Mike's the real storyteller in all this. So many epic tales of courage and endurance wouldn't be known if he hadn't tagged along, with his cumbersome gear, quietly staying close to the action, never getting in the way, and always keeping up.



Mike has stood
at the forefront
of Australian
adventure
filmmaking
for decades.

Notable films by Michael Dillon

Everest: Sea to Summit (1992)

This multi-award-winning documentary follows Australian mountaineer Tim Macartney-Snape as he becomes the first person to climb Mount Everest from sea level without supplemental oxygen. The film captures his journey from the Bay of Bengal to the summit of Everest.

Awards: Won the Grand Prize at eight international mountain film festivals.

From the Ocean to the Sky (1979)

This film documents Sir Edmund Hillary's ambitious journey up the Ganges River by jetboat, followed by an attempt to climb the sacred Himalayan peak, Akash Parbat. The film captures the spirit of exploration and Sir Edmund's reflections on life after the death of his wife and daughter. It showcases Sir Edmund's shift from mountaineering to river exploration and his ongoing fascination with adventure.

Award: Grand Prize at the Trento Film Festival in Italy.

Beyond Everest (2000)

Michael Dillon follows Sir Edmund Hillary as he revisits the Himalayas, focusing on the humanitarian projects Sir Edmund initiated in the region. The film highlights Sir Edmund's transition from explorer to philanthropist, particularly his work in building schools and hospitals for the Sherpa community.

Awards: Best Film (Mountain Culture) at Poprad, Trento and Vancouver international mountain film festivals.

A Little Bit Mongolian (2008)

This film follows 12-year-old Angus Paradise (AG Young Adventurer of the Year 2009) from Scone in NSW as he aspires to ride with Mongolian children in their annual long-distance horse races.

Award: Best Film (Mountain Culture) at Banff Mountain Film Festival 2009.

The Great White Whale (2024)

A thrilling odyssey that follows the extraordinary journey of a group of determined climbers as they attempt to conquer Australia's highest peak, Big Ben, located on remote Heard Island.

Awards: Grand Prize at the Mendi International Mountain Film Festival; Best Expedition Film Award, Italian Alpine Club Award at the Trento Film Festival.

In 2022 Michael received the Grand Prize for lifetime achievement from the International Alliance for Mountain Film – the first filmmaker from the Southern Hemisphere ever to be granted this award. You can see the film and meet Michael in Melbourne on 6 February. See page 35 for full details.

STEPH DEVERY **SPRIT OF ADVENTURE**

Steph pedalled her way through 40 countries on a revealing journey of self-discovery.

TRAVELLING AS A solo female through multiple countries is no small feat – especially when faced with volatile political situations, language barriers and difficult terrain. This was the experience of two of our awardees. Steph Devery and Lucy Barnard travelled under their own steam, one cycling south through Europe, Asia and Africa, and the other walking north through the Americas. Steph is our 2024 Spirit of Adventure awardee.

In June 2021, Steph – an Aussie paramedic working in London – was feeling burnt out. She'd worked through the height of the COVID pandemic and, feeling exhausted and mentally drained, was ready for a change.

With almost no bikepacking – backpacking by bike – experience and only a rudimentary knowledge of how to change a flat tyre, she bought a gravel bicycle and embarked on a cycling odyssey across the globe. She'd intended to sign up for a bike mechanics course, or teach herself on YouTube, but she ran out of time. "It got to a point where I was just going to have to figure it out for myself," Steph says. "The first month was tough, physically, because I had done exactly zero training to prepare for it. But if you're just super kind to yourself, you're going to get where you need to be fitness-wise in a month or two. I would do it the exact same way again, just go, and figure it out along the way."

Steph planned to set off in Norway but border closures forced her to begin in Spain. "I had this moment where I had to decide, do I want to go for the adventure, or do I want to go for this perfect straight line from north to south? Of course I wanted to cycle from Norway, but it set the trip up to be this unplanned, nonsensical, beautiful journey directed purely on the love of adventure instead of completing a pre-planned goal. It was incredible where that attitude led me," Steph says.

She camped on deserted beaches in Portugal and Greece, tackled lung-busting climbs across the Pyrenees and Alps and partook in the culinary delights of Italy and Turkey. She carried a stray dog 1500km in a basket attached to the handlebars to its forever home in the Balkans.

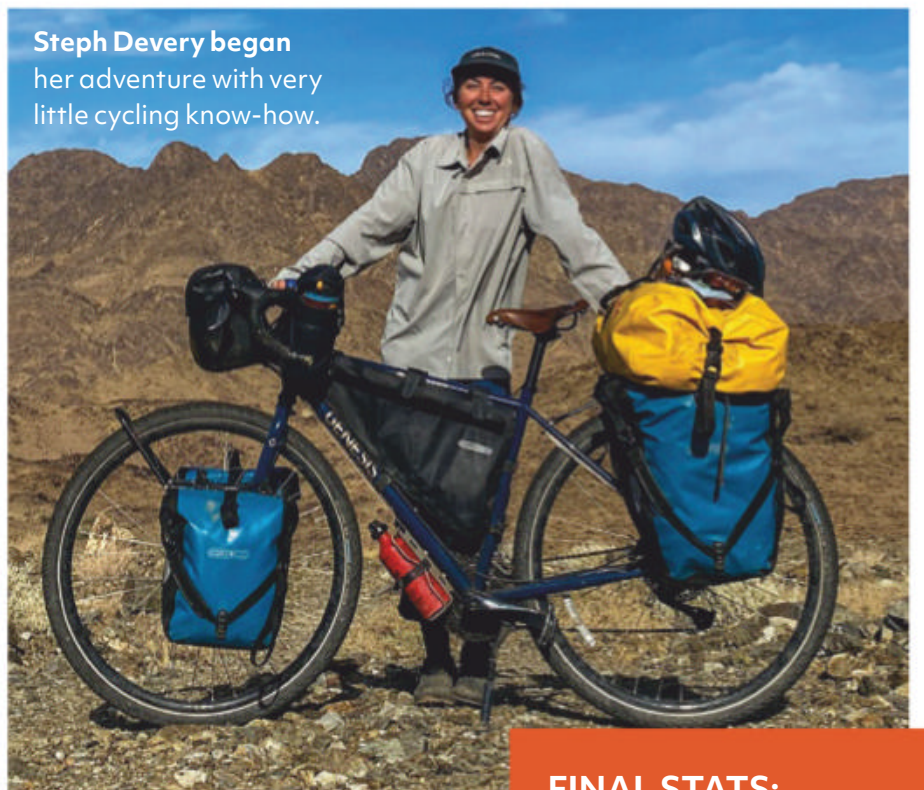
But the true adventure was only just beginning. Crossing the Mediterranean, Steph explored regions of the Middle East now considered inaccessible. She traversed the length of Jordan, Israel, Palestine and parts of Egypt before crossing one of her favourite countries of the expedition, Saudi Arabia.

"I didn't quite know what to expect; tourism was still nascent, and I wasn't sure how a solo woman on a bicycle would be received in such a conservative society," she says. "It makes me laugh to think back now, knowing how unbelievably kind and welcoming the people were. I've never experienced that level of generosity before."

She was constantly showered with small gifts and meals and welcomed into family homes. As a solo woman, she found it incredibly special to be granted access into the protected places where women and children lived.

In April 2023, she crossed the Red Sea by ferry heading for Sudan. "Cycling across the Sahara was an amazing challenge," she says. "Temperatures would soar above 50°C every day, so I would wake up hours before dawn, cycle until the heat

Steph Devery began her adventure with very little cycling know-how.



FINAL STATS:

DAYS CYCLED: 343
NIGHTS CAMPED: 287
DISTANCE: 24,600km

became unbearable and then find shade anywhere I could, usually sweltering in a culvert under the road."

She was evacuated by the military from Khartoum after civil war broke out in central Sudan, leaving behind everything but her passport. Two months later she began the final stretch in Tanzania. She had wild encounters as she rode a further 8000km across 12 countries. "It wasn't scary living among big predatory animals because you are just another animal in the wild. You become quite primitive living outdoors for so long," she says. "There were a few spicy moments for sure, like in Tanzania when I woke up to find my tent surrounded by a pride of lions. I've never appreciated a tiny piece of nylon tent fabric more in my life."

She was embraced by tribes seldom visited by outsiders. She discovered the true meaning of humanity in the kindness of strangers along the way.

She recalls being treated as an honoured guest by village chiefs, escorted for kilometres of steep climbs by singing children and sharing meals cooked by loving families around a fire. She encountered extreme electrical storms in Uganda, food shortages in northern Malawi, scorching heat in the Kalahari Desert and the relentless, corrugated, sandy roads across Namibia.

As Steph arrived at journey's end on 14 January 2024, she expressed overwhelming pride in her achievement.

"I had the most incredible final day surrounded by incredible new friends," she says. "They all came with me to the southwestern tip of Africa, the Cape of Good Hope. I had this very special moment. They let me go the last kilometre alone – 'This is your journey,' [they said] – and all I could think was, 'Wow, I've actually bloody made it! This is what I've dreamed of for five years and here I am.'" ►

Lucy's faithful companion Wombat is also recognised in the 2024 Adventurer of the Year awards.



LUCY BARNARD **ADVENTURER OF THE YEAR**

We honour Lucy's incredible achievement with the 2024 Adventurer of the Year award.

LUCY BARNARD'S EPIC foot traverse across the world is the stuff of legend. She aims to be the first woman to walk the length of the Americas, south to north, solo (see *The Longest Walk*, AG 182). She began in 2017 at Ushuaia in Argentina. Her journey will ultimately span 30,000km across two continents and 13 countries. Her goal is to reach Utqiagvik (Point Barrow) in Alaska, the northernmost point of the United States.

Lucy's professional background in adventure risk management helped her to successfully navigate dramatic landscapes, extreme weather events, natural disasters and other unpredictable situations, plus the specific threats of being a solo female traveller.

In Argentina, she hiked across Patagonia during the region's worst winter in 20 years. Using snow to cover her tent at night, she coped with temperatures below -20°C . In Chile, she used a hiking trailer to carry more than 60L of water 1600km through the Atacama Desert, the driest non-polar desert in the world. She crossed a 500-year-old Incan trail through the remotest parts of Peru, where languages change from one mountain to the next.

When crossing the infamous Darién Gap in Colombia, Lucy sought permission from indigenous groups with sovereignty over the area, then she coordinated diplomatic support from the Panamanian government – receiving police escorts in high-risk areas. “When a situation arises, I’m not making decisions based on panic, or being purely reactive. I’m methodical and consider the full scope of the situation, plus other risks that might be layered on top that could make it worse,” she says. “I stay flexible knowing new elements may come to light, and I make sure I’m not fixed on one path. Most importantly I respect the communities I’m passing, listen to their advice, and am always willing to turn around and find another way.”

Wombat, Lucy's blue heeler, has been keeping her company – and helps deter unwanted attention. He also breaks down language barriers and helps Lucy connect with locals.

“Security was the practical reason I wanted to find a dog but I think, subconsciously, I wanted a friend and Wombat's presence was instantly transformative,” she says.

Lucy reached the Caribbean Sea on 3 March 2023, becoming the first woman to walk the length of South America – a total of 11,100km across five countries.

Since then, she's passed through Central America, risked the cartels of northern Mexico and is now in the USA, managing snow-cloaked alpine wilderness and the threat of large predators, including mountain lions, bears, wolves and coyotes.

Travelling on foot allows for more intimate interactions. Lucy has been welcomed into private homes, embraced by families, shared meals with strangers, had her wounds treated and learned about very different ways of living. These cultural encounters have enriched her journey and at times provided much-needed emotional and physical support.

She's a gifted storyteller, using social media platforms to share her story. Her honesty and authenticity have resonated with people everywhere, especially women, encouraging them to go beyond their comfort zone and find their own adventure.

As for Wombat: his endurance, gritty character and unwavering dedication and value to Lucy and her quest make him worthy of special recognition, and he receives our first ever Canine Adventurer of the Year award.

Don't miss the chance to meet Lucy at our Australian Geographic roadshow event at the Hayden Orpheum Picture Palace in Cremorne, Sydney, on 30 January 2025. See page 35 for details.

TOM ROBINSON **YOUNG ADVENTURER OF THE YEAR**

Meet the youngest person to row solo across the Pacific Ocean.

AS TOM ROBINSON headed out to sea from Vanuatu on 1 October 2023, 15 months after leaving Peru to row solo across the Pacific Ocean to Australia, he had every reason to believe most of the hard yakka was behind him. But at 5pm on Thursday 5 October, as Tom sat inside the cabin of his wooden rowing boat contemplating dinner after a hard day on the oars, a freak wave washed over the top of the little boat, flooded in through the open hatch and capsized it.

By leaving the hatch open, Tom says he made a “fatal” error: “If the hatch had been closed, then the boat would’ve self-righted, and it’s often closed when it’s rough,” he says. “But to me, it didn’t seem at all rough enough to warrant closing the hatch, so I had it open to let air into the cabin.”

Luckily for Tom, it didn’t prove fatal – but the 24-year-old rower would spend the next 14 hours clinging to the upturned hull of his little boat, naked, cold and wet, as it was buffeted by wind and smacked by waves. A P&O cruise ship, complete with 2000 passengers, diverted from its course to pluck him to safety the next morning, causing a media sensation and seeing Tom dubbed the “naked rower”.

Tom’s expedition began in Callao, Peru in July 2022. He wanted to fulfil a childhood dream to be the youngest person to row across the Pacific Ocean.

He did so in *Maiwar*, a wooden clinker-built 7m-long rowing boat he designed and built himself. Although young, Tom is a qualified wooden-boat builder who once rowed 130km solo from Brisbane to the Gold Coast while still a schoolboy in a 4m dinghy.

Tom’s experiences on the first leg of the epic Pacific voyage undoubtedly equipped him with the mental strength and survival skills to endure what was to come. “I was at sea for 160 days. I originally planned to make landfall in the Marquesas, but I was blown off course. And so, almost overnight, the journey changed from a 100-day first leg into what became a 160-day leg. Penrhyn Island was next after the Marquesas. And so it turned into a big, long, arduous, painful, hard journey.

But it was pretty spectacular too sometimes,” he says. “I packed food for 150 days just in case, because I thought that there was a very slim chance that this could happen, and it did. I caught a lot of fish too. I left South America with about 350L of water, and I also had a desalination pump that turns saltwater into fresh. I was rationing two litres a day, which was really challenging. By the end of the journey, it was so hot that I just couldn’t manage on just two litres a day, so I had to pump for about half an hour each day to get more fresh water to drink.”

Tom occasionally encountered other vessels on the high seas, including the jumbo squid fishing fleet off Ecuador and a tuna trawler. They lowered a speedboat, and two Ecuadorian fishermen rushed over to the *Maiwar*, but they didn’t speak English and Tom’s Spanish wasn’t too good either. “But I rubbed my belly to say I was hungry, so they came back with all this food. There was tuna, but the rest of the food wasn’t great. I got

strawberry jam, I got Powerade, I got cigarettes, I got all these things I didn’t need. That was really funny,” he says.

Apart from those rare human encounters, Tom was alone for five months. “I find solitude leads to real contentment. I don’t miss anything at home, or even civilisation itself. I find I’m completely at peace when I am alone at sea,” he says.

He eventually made landfall on remote Penrhyn Island (Tongareva) in the Cook Islands on 9 December 2022, completing a 5000 nautical miles non-stop traverse of the most remote stretch of the Pacific Ocean. In doing so he became the youngest person to row solo across the Pacific Ocean, as verified by the Guinness World Records.

For nine months after that first landfall, Tom threaded his way through various island nations of the South Pacific, connecting with people and cultures whose lives are dependent on healthy,



Tom Robinson began his solo rowing adventure in July 2022, departing from Callao in Peru.

productive seas. “There’s a simplicity in the way that the Pacific Islander people I met live, that’s so beautiful,” he says.

Tom was just 50 days from home when the *Maiwar* capsized. Does he feel he missed out on completing the journey? “To be honest, finishing off that last 50 days wasn’t that important to me,” he says. “It’s not about the record in the end, it’s about the experience along the way. The whole journey was far more exciting and adventurous, enjoyable and terrible than I could have ever imagined, and I had a lot more of an adventure than I ever expected to.”

Maiwar washed up on a remote island in Papua New Guinea in early 2024. Tom travelled there to see if she was salvageable. She wasn’t, but at least he knew her final fate.

Tom joins past young adventurers of the year, including Society advisory committee member Chris Bray, Jessica Watson, Tim Cope and aviator Ryan Campbell.



STORY BY **ESME MATHIS**
PHOTOGRAPHY BY **ALEXANDER MAYES**



The Parramatta Female
Factory operated from
1821 to 1848. In the
decades after its closure,
the site was renovated and
expanded to house various
female institutions.

MOTHERS OF MODERN AUSTRALIA

At Australia's earliest surviving female convict site, women are being written back into history.

WELL-BEHAVED WOMEN SELDOM make history. The forgotten lives of women at the Parramatta Female Factory show female convicts rarely make it into the history books, either. Between 1821 and 1848, thousands of women passed through this institution, 25km west of Sydney, New South Wales. Many of their names and histories are lost to time – but their collective legacy still resonates at the site. “You stand here and you feel it; those women are talking to you through the walls,” says Gay Hendriksen, president and research coordinator at Parramatta Female Factory Friends, a community action group working to protect and conserve the site. “It’s an extraordinary place, and extraordinary that it still survives – which is why we want World Heritage Site listing.”

The surviving buildings and structures of the Parramatta Female Factory and Institutions Precinct have been nominated to become a UNESCO World Heritage Site, and it’s expected to achieve this status in 2027 or 2028. From 1821 until the 1990s, this 27ha site was home to various welfare institutions for women and girls, from ‘lunatic’ asylums and orphanages, to 20th-century detention centres and correctional schools. But its earliest role was the Parramatta Female Factory, of which just three buildings survive, including female-only convict barracks and original walkways and courtyards.

Built between 1818 and ’21, the Parramatta Female Factory was Australia’s first purpose-built institution for convict women. “The factory was multiple things,” Gay says. “It was a barracks and a holding bay for convict women who came out on ships. It was a factory, it produced linen and wool and linsey-woolsey, thousands and thousands of yards. It was a marriage bureau ... [and] it was a hospital – the first women’s health service in the colony.”

All unassigned female convicts who arrived at the colony of NSW were sent here and employed in the factory until they received assignment or got married. (Female convicts already working in the colony – usually in domestic service – could be sent here if they misbehaved at work, including falling pregnant.) It is not known how many women passed through this factory, ►



“The reason for the first riot was the conditions: not enough water, no shoes, not enough food.”

Female patients at the Parramatta Hospital for the Insane gather in the dining hall, circa 1888.



but estimates range from 5000 to 9000. “The challenge for us is ... the big destruction of records by the government in the 19th century. As a result, we have no jail entrance books. We have no defining list of these women, so the list has come from research and family historians,” Gay says.

A woman’s experience at the factory ultimately depended on her allocated ‘class’, a system that incentivised and rewarded good behaviour. The well-behaved convicts in first class – the merit class – were eligible for assignment (working for a private landowner), received a lighter workload and could apply to get married; women in the second class were on probation, or withheld from assignment because they were serving sentences, or were sick or pregnant; and third class women – the crime class – were confined to solitary cells and subjected to hard labour such as breaking stones and oakum picking (unravelling old ropes by separating their fibres). The work allocated to women in the first and second classes included needlework, hat making, weaving, cleaning, straw plaiting and cloth scouring. Crime-class women were given an inferior diet and had their hair forcibly shaved. The site’s layout deliberately separated well-behaved convicts from those sentenced to punishment.

I T WAS IMPORTANT to keep unassigned convict women contained within the site’s 4.5m walls, not just for their physical safety, but also to ‘protect’ the colony from moral decay. Visiting the Australian colonies from 1830 to ’33, Lieutenant W.H. Breton described female convicts as “utterly irreclaimable, being the most worthless and abandoned of human beings! ... they are, taken as a body, infinitely worse than the males!” Colonial authorities were doubtful these convicted women would have a positive moralising impact on the colony’s men, who outnumbered women six to

one. In 1826, Reverend Samuel Marsden published a pamphlet that warned, “the moral evils increased continually with the increasing number of female convicts transported from Europe”.

Such negative, scornful attitudes towards convicts lingered in Australian society for decades. In the early 20th century, many families kept their convict ancestry secret to avoid the stigma still attached to it. But as Australia’s national identity evolved, so too did public opinion about convict men and women. “It’s not just those in power who have a story,” Gay says. “Every life counts and every story counts.”

Researchers and family historians have spent decades piecing together personal stories of convict women at the Parramatta Female Factory that cast them in a more sympathetic light. Researchers estimate that more than 90 per cent of female convicts had no prior convictions before the crimes for which they were transported. As more of their stories are unearthed, it’s impossible to not feel compassion for these ill-treated women and children, and indignation at the injustices they suffered.

Take Mary Hindle, for example. Mary was an English weaver transported to NSW for her involvement in the 1826 Power Loom Riots. At the time, factory owners across Britain were replacing workers with new, efficient machinery. Threatened with unemployment, Mary was one of 1000 weavers who, armed with hammers, pikes and hatchets, destroyed 106 power looms protesting for workers’ rights and human rights. Only nine rioters were convicted, all of whom were eventually pardoned – except Mary.

While interned at the Parramatta Female Factory, Mary wrote a letter to the governor, pleading: “I hear that pardons have been granted to the men involved in the crime [machine breaking] and I humbly implore your Excellency to include



Convict women and girls from all walks of life passed through this institution, but many of their stories were lost during the mass destruction of convict records in the late 19th century.

me in the number of those who have received the Blessing of such Clemency ... Do not suffer me to languish the remains of my existence in hopeless Slavery." Her request was ignored, and Mary would later take her life at the factory.

The story of Constance Trudgett (née Couronne) also stands out. Constance, a nine-year-old African slave from the British colony of Mauritius, and her 11-year-old cousin Elizabeth were sentenced to life transportation for attempting to poison their mistress. "The young girls put white powder in the tea of their slave mistress," Gay says. "Imagine – two African children, sent out here to the colony, speaking only French." Constance and Elizabeth arrived at the Parramatta Female Factory in 1834. Both were assigned to the first police magistrate Henry Croasdaile Wilson, to improve his daughters' French. Constance married in 1841, had 11 children, and died aged 67 in 1891.

The most infamous events associated with the factory were riots. On 27 October 1827, third-class women rioted in retaliation against reduced rations. About 100 women stormed out of the factory and made their way into Parramatta town, requiring intervention from the 57th Regiment. "The first riot in 1827, I call it 'workers action', because the women [put] down tools, they were not working until their conditions are improved," Gay says. "The reason for the first riot was the conditions: not enough water, no shoes, not enough food." More riots occurred throughout the 1830s and '40s. "There

were six riots, five of which I would say are about human rights," Gay says.

The records that survive offer a mere glimpse into the complex lives and thoughts of these women. We can assume the thousands of convict women at the Parramatta Female Factory represented the full spectrum of human nature: women who were resilient, timid, defiant, vulnerable, resourceful and courageous. Many would become pioneers in Australia and lead meaningful lives. "It's all kinds of humanity and their stories," Gay says.

The Parramatta Female Factory Friends is a community action group that's helping bring these stories to light through research, talks and tours. They're advocating for the site to achieve UNESCO World Heritage Status, and they work tirelessly to monitor the site and preserve its surviving buildings.

Gay says there are many reasons why this site should be considered for World Heritage. "It was the first in the world for this kind of institution. It was a model for all the other [female] factories, and it actually predates any female prison in England because during the early transportation period, they were still putting men and women in prison together as well as children," she says. "There's so much, it doesn't matter how you look at it; it's the social history, the connection to the whole of the rest of Australia, [the] women who changed the nation one by one. So I'm really passionate about it, and so is everyone on our committee and our members."

FORMIDABLE FIRE ANTS

STORY BY AMANDA FREEMAN
PHOTOGRAPHY BY ALEX WILD

The fight is on to stop one of Australia's smallest but most aggressive invasive species.



Known commonly in Australia as the red imported fire ant, *Solenopsis invicta* is one of the world's most damaging pest ant species. It's native to South America but has been accidentally imported to the southern United States, eastern Australia, China and elsewhere. Here a worker fire ant is shown in stereotypical defensive posture, its sting extruded, waving a droplet of venom.



MARK NEWTON WAS at Archerfield Wetlands in Brisbane's south-west when curiosity got the better of him and he placed his hand beside a red imported fire ant (RIFA) nest. "I wanted to poke the bear," the retired ecologist says, explaining the stunt he wouldn't encourage others to try. "I only got about half a dozen ants on me, but that was enough ... It was like little sharp pinpoints of pain," he says. "They just came spilling out of the nest. I could flick those few off but, bloody hell, there were hundreds of them and they were very angry. If they ran all over me, that would be a horrible experience. If [they swarmed] pets or small children, it would be horrible."

This was Mark's first – and hopefully last – encounter with the invasive ant species he'd been hearing about since moving to Brisbane in 2022. RIFA first slipped through Australia's borders sometime before 2001, when infestations were discovered at Brisbane's port and the south-western Brisbane suburb of Richlands. The Port of Brisbane incursion has been eradicated, along with several other separate infestations in Queensland, New South Wales and Western Australia. Unfortunately, Greater Brisbane's main RIFA population has proved far more challenging to exterminate and has spread from the south-western suburbs to north of Brisbane, with outbreaks detected across the NSW border in Murwillumbah and Wardell.

Fire ants now cover an area spanning 800,000ha, despite \$690 million invested in the National Fire Ant Eradication Program (NFAEP), which has been in operation since the pest was first detected. They are contained, but not yet eradicated.

The International Union for Conservation of Nature's Invasive Species Specialist Group lists RIFA among the world's worst invasive species. These South American natives have spread to more than 20 countries, moving around the world in shipping containers. They've hitchhiked their way in equipment, soil and nursery products across large parts of Mexico, eastern China and the southern United States. These 'super pests' are not welcome in Australia.

THE THREATS RIFA pose to Australia are far-reaching and severe. First there are the risks to human health. Mark's reaction to the few stings he received was mild and short-lived, but many RIFA victims don't get away so lightly. Pus-filled blisters are common, and the National Allergy Centre of Excellence estimates that one in five sting victims suffer large, extremely itchy welts. As many as two per cent of people stung may develop a life-threatening allergic reaction.

Fire ants thrive in open areas around human settlement and are more active on hot summer days, just when many of us gravitate outdoors. They're adaptable enough to live across most of Australia. If left to spread, our entire population would be at risk of RIFA stings, resulting in substantial health impacts and healthcare costs. With RIFA at the beach, at the park and in your backyard, the great outdoors wouldn't be so great any more.

As if risks to our health and backyard barbecues aren't



A young fire ant queen prepares for her mating flight.

bad enough, RIFA pose a serious threat to many sectors of Australia's economy. A 2016 review entitled *Red Imported Fire Ant in Australia: What if we lose the war?*, in the journal *Ecological Management & Restoration*, highlighted how much is at stake. If not eradicated, the authors advise, RIFA are likely to impact the agriculture, building and construction, tourism, electrical and communications industries. The 2024 Senate inquiry into RIFA, which was tasked with reviewing control efforts, concluded that a nationwide outbreak could cost Australia up to \$2 billion annually.

Agricultural industry leaders are certainly concerned. These digging, chewing, stinging ants munch and tunnel their way through plants, prey on pollinators, injure livestock and impede animals' access to food and water, AgForce Queensland and Queensland Farmers' Federation told the inquiry.

Fire ants are already making business difficult for nurseries and garden centres within Brisbane's fire ant biosecurity zones, where movement restrictions apply for materials that can carry fire ants. "A lot of garden centres are caught up in it," explains Reece Pianta, advocacy manager of the Invasive Species Council. "Even when they're not the source of infestations, they're dragged into the fire ant biosecurity zone with all the regulatory and cost burdens that go with that. We're talking tens of thousands of dollars-worth of staff time, preventative treatments on the stock they're selling and the auditing and inspections they've got to go through."

If domestic quarantine arrangements are burdensome, the risks fire ants pose to international trade are even greater. As Reece notes, Australia has a reputation for being a very bio-secure country. "If there's a risk of someone [getting] fire ants off us in a shipment, then they don't want the product," Reece says. "There's an international reputation at stake here."

Perhaps most devastating of all is the impact fire ants could

have on Australian flora and fauna. RIFA eat just about anything and, as Mark witnessed, they swarm, spilling out of their nest to aggressively defend their colony. This means ground-dwelling and ground-nesting fauna and slow-moving animals are particularly at risk. "They will attack ground-nesting birds and eggs where they can," Reece says. "They'll attack stationary animals and fight other insects." Many ground-nesting birds, including the ground parrot, little tern, plains-wanderer and bush stone-curlew, are already threatened species. It's likely that fire ants would add another challenge to their dwindling populations.

Based on the experience of countries such as the USA and China, where RIFA have spread extensively, fire ants could wreak all sorts of havoc in Australia, from out-competing native ant communities to eating frogs and attacking hatchling lizards and snakes. Young left unprotected in dens, as baby platypuses are, may also be vulnerable to fire ant attack. As well as injuring and killing individual animals, fire ants can transform entire ecosystems by chomping their way through native plants, disrupting pollination and seed dispersal, and competing for native species' plant and invertebrate foods.

Because RIFA have so far been controlled in Australia, our ecosystems have not felt the full brunt of their arrival. But, if not eradicated, the Invasive Species Council warns, the damage wrought by RIFA in Australia could surpass that caused by feral cats, wild dogs, foxes, camels, rabbits and cane toads combined.

Is eradication still possible? "Yes," says Ashley Bacon, executive program director of the NFAEP. But fire ants are a formidable foe. RIFA bear the scientific name *Solenopsis invicta*. The Latin word 'invicta' means 'unconquered' or 'invincible' – and for good reason. "It's an invasive species almost perfectly adapted to survive in the Australian environment," Reece says. "When it floods, fire ants can form huge rafts by locking their legs together.

“It’s an invasive species almost perfectly adapted to survive in the Australian environment.”

They put the queen and the eggs in the middle and then the raft will slowly rotate so the ants on the bottom are getting a chance to breathe. The whole colony floats on the water and sets up in a new dry location.” And when there’s low rainfall, RIFA go underground, where they can survive in a subsistence state. “They can survive that way for years,” Reece says. “Fire ants are amazing. I don’t want them in this country but as a creature in their natural environment they are just amazing.”

NO OTHER COUNTRY has successfully eradicated a RIFA incursion as big as south-east Queensland’s, but NFAEP is giving it a red-hot go. The program is delivered by Biosecurity Queensland and funded by all states, territories and the Commonwealth Government in a cost-sharing arrangement that will take responsibility for a nationwide eradication effort. The Queensland Government’s Fire Ant Suppression Taskforce focuses on helping landowners manage fire ants while awaiting eradication treatment.

Eradication will be achieved by means of NFAEP’s Fire Ant Response Plan 2023–27, dubbed the ‘horseshoe plan’. “First we need to contain the ant,” Ashley Bacon says. “To do that, we’ve created a continuous surveillance area around the infestation in the south-east corner of Queensland and within that a 10km-wide eradication treatment area. In that area, we need to treat 100 per cent of target properties multiple times over several years. Once we’ve completed treatment in one band, we’ll incrementally move the eradication area inward. We respond to detections outside the containment boundary as quickly as possible – we need to get on top of them to ensure we stop the spread.”

Inside the eradication treatment band, in what’s called the suppression area, not everyone is happy with the new approach. Some communities have seen a reduction in fire ant control and feel neglected. “The change in strategy has meant that in

some previously treated areas some residents may feel we’ve taken a step back,” Ashley says. “We can’t treat 800,000ha all at once in a synchronised way; we’ve got to delimit the infestation area and then move our way back in.”

This doesn’t mean communities plagued by fire ants can’t control them in the meantime. Local councils, industry and residents can all play a part in knocking down fire ants by treating properties they own or manage. “Local, state and federal government agencies are already on board,” Ashley says. In some local government areas, free fire ant treatment kits are available to residents.

There are three main weapons in the ant-busting arsenal. The first line of treatment for high-risk situations, such as where public safety is at risk, is a liquid contact insecticide injected directly into RIFA nests by a licensed pest manager. “It’s quite slow-acting at the dilution we work with,” says Dr Erin Wallace, a scientist with the NFAEP. “That allows the ants to wander through their nest and come into contact with the insecticide. Their behaviour doesn’t change for a couple of days, so they’re not aware that there’s something toxic in their environment. If we have anything that smells too strongly or acts too quickly there’s a risk of the nest splitting, and the queen not getting the dose that’s needed.” In lower-risk situations, a fast-acting insecticide that acts mostly on foraging worker ants is used.

“We use this if we’re looking for a quick knockdown in an



To sting, a fire ant first bites its target with its mandibles. The bite anchors the ant in place and provides leverage to insert the stinger. The bite itself is harmless, it’s the subsequent sting that carries the venom and the pain.

RECOGNISING RIFA

- Fire ant nests look like patches or mounds of loose soil. They don’t have obvious entrance and exit holes.
- Check suspicious ant nests by gently poking with a long stick and take note of the ants that come out.
- RIFA have coppery-brown heads and bodies with a darker abdomen.
- RIFA are small – only 2–6mm long – and there are different-sized ants in a nest.



A cut-away of a fire ant mound shows the intricate system of galleries within the nest.



These critters swarm, spilling out of their nest to aggressively defend their colony.

If pheromones for colony recognition could be turned off, it could force workers to turn on their queen.

area that's not high risk because the results can vary depending on the time of year, the temperature, and whether the ants feel like foraging that day. It may not necessarily get through to the queen in the quantities necessary to kill her, because it may take out the workers too quickly."

The weapon of choice in the eradication treatment area is a granular bait containing an insect growth regulator, the same active ingredients used in pet flea collars. This prevents the fire ant queen from producing healthy reproductive workers. "It's like the contraceptive pill for ants," Erin says. "To get rid of a fire ant colony, we need to get the queen." Depending on the size of the property, handheld spreaders, 'side-by-side' vehicles and even small aircraft are used to spread the bait.

WHILE FIRE ANT eradication is feasible with the current tools, Erin hopes that new technologies will simplify and speed up the process. Gene silencing, which prevents the expression of specific genes, is one possibility. "Adult

fire ants can't digest proteins," Erin says. "If they find a chunky piece of food that's high in complex proteins, they have to take that to the colony. They give it to a fourth instar [stage] ant larva, placing it on a specialised food basket organ. That larva then digests it into a liquid and the workers consume the liquid," she explains. "If we can block gut function in the life history stage that digests proteins, that's going to have a big effect."

Colony recognition cues are another target for gene silencing. "When ants meet each other, they'll touch each other with their antenna," Erin says. "They're saying, 'I'm of the same colony, I'm not a danger'." If pheromones for colony recognition could be turned off, it could cause colony collapse. "It could force workers to turn on their own queen if they don't recognise her," Erin says. "We're targeting very specific parts of the fire ants' biology with that technology, which would make it very species specific. If we can get that up, that would be a huge win."

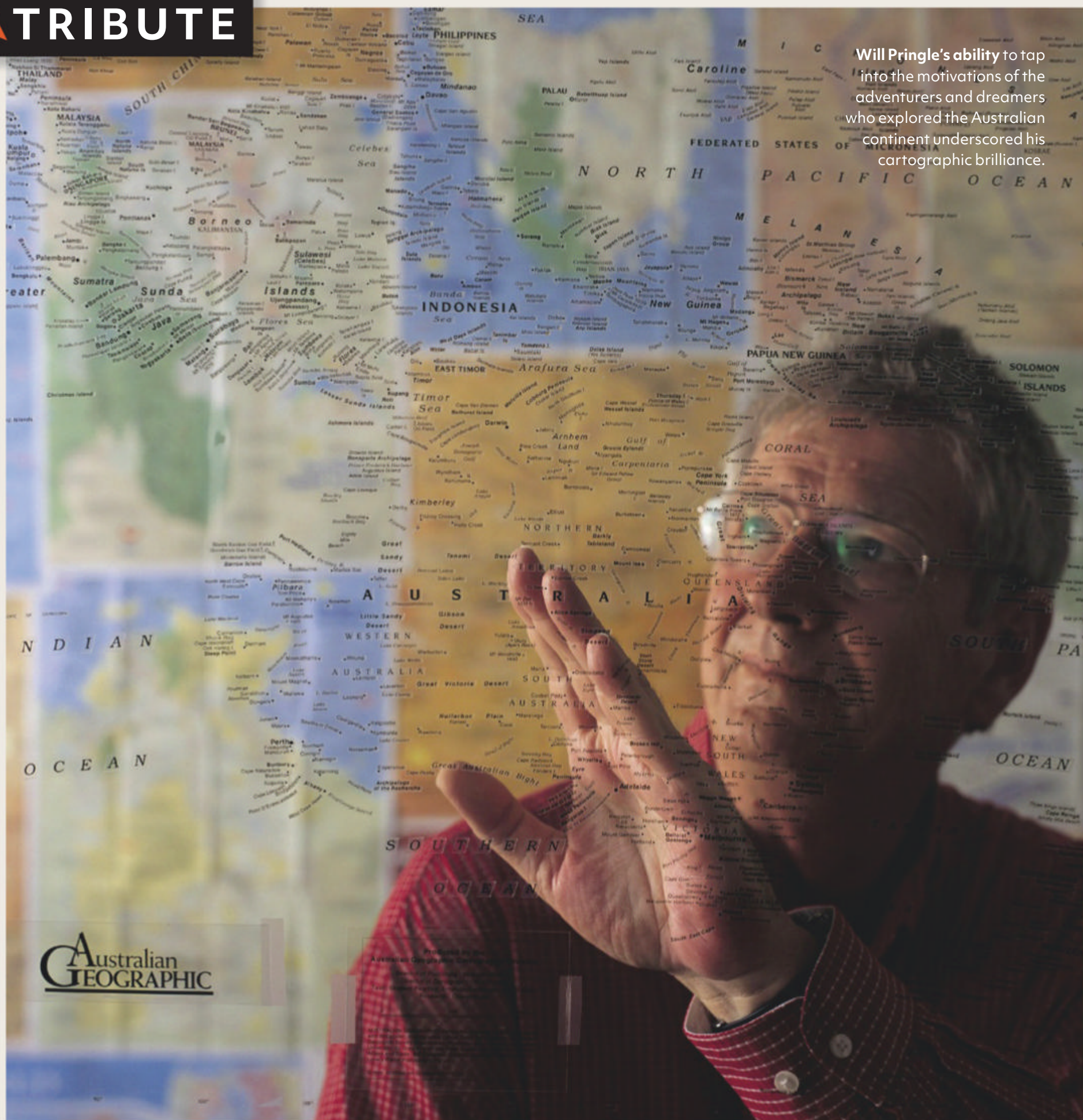
Fire ant eradication is still technically feasible, but it will take a whole-community approach, with locals, industry and all levels of government playing a role for it to be successful, the NFAEP told the Senate inquiry into RIFA. It has been, and continues to be, a massive investment. "But stack that up against the cost of failure," Reece says. "We need to deal with this, once and for all." ■

ERADICATION ACTION

- Report suspected ants or nests at fireants.org.au or phone 13 25 23. Upload a photo for identification.
- **Allow NFAEP teams to treat fire ants on your property.**
- Learn how to manage and treat fire ants yourself. Free self-paced courses are available at fireants.org.au. Sign up for a free treatment kit, if eligible.
- **Don't spread fire ants. Check the fire ant biosecurity zones and movement restrictions for soil, hay, mulch and other materials.**
- When buying landscape and garden products, ask your supplier about their fire ant practices and if they're confident they don't have fire ants.



Will Pringle's ability to tap into the motivations of the adventurers and dreamers who explored the Australian continent underscored his cartographic brilliance.



THE CARTOGRAPHIC KING

STORY BY KEN EASTWOOD

After almost four decades of creating beautiful, exquisitely detailed maps for Australian Geographic, Will Pringle has put down his cartographic tools for the last time.

HAVING WON MULTIPLE international awards and set an exceptional standard for mapping in Australia and worldwide, AUSTRALIAN GEOGRAPHIC's head cartographer, Will Pringle, passed away at the age of 80 on November 16, working right up until his final days, and the accolades have been pouring in.

A beloved grandfatherly figure around the office, Will worked for AUSTRALIAN GEOGRAPHIC for 37 years, starting on the journal's fourth issue, with edition No. 183 his last. Like his maps, he was always immaculately presented, professional, accessible and brimming with information, with a particular memory for obscure places. Sometimes slaving for months over one large map, Will was known to make tweaks well after a deadline in his search for perfection – even painstakingly adjusting the tint of a map to better match the photos in a layout.

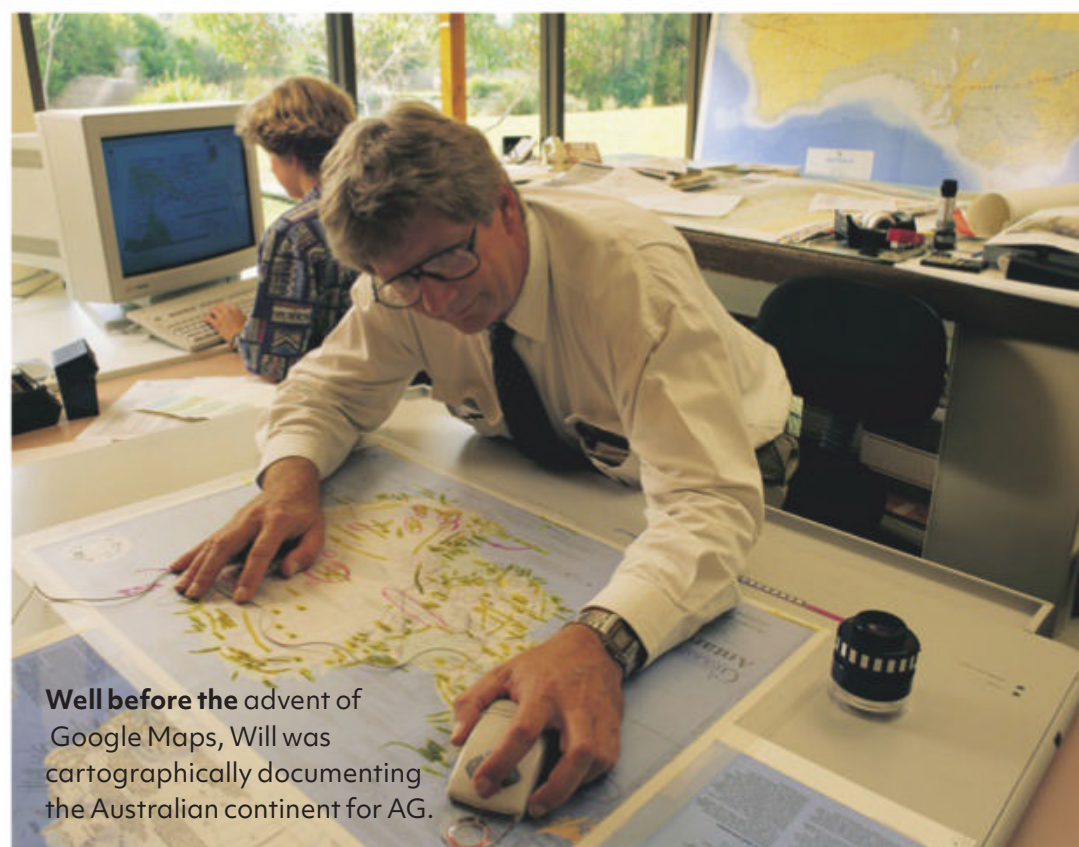
"I had several rules about each map," Will recalled in early November. "It had to be clear, it had to be accurate, timely and it had to be arresting – by that I mean visually attractive."

Growing up in Sydney and attending Balgowlah Boys High School, Will began a cartographic apprenticeship at age 16 with Clive Barrass who, among other things, produced the *Gregory's Street Directory of Sydney and Suburbs*. It was a strict, old-school, master-and-apprentice relationship in an era when maps were completely hand-drawn on transparent layers that were then stuck together. "For the first couple of hours each morning, I would sit there copying out letters," Will said. "I was quite good at that, so it wasn't hard work." The incredibly neat handwriting he was forced to learn remained with him for the rest of his career.

Completing his apprenticeship a year early, Will rose through the ranks of that small enterprise before setting up his own business, Travelog, primarily making state maps and road maps marketed and sold through service stations. These stunning references were admired by businessman and aviator Dick Smith as he was setting up AUSTRALIAN GEOGRAPHIC in 1985, so he approached Will about joining the AG team just as Travelog was being sold to Universal Publishers, which made the UBD street directories.

"I'd started the journal and had always wanted to publish really good maps, but in the first year or so we couldn't get any good map-makers," Dick says. He asked Will to join the team and set up the Australian Geographic Cartographic Division. Will later said that working for AUSTRALIAN GEOGRAPHIC was exactly what he'd dreamed of," Dick recalls. "From the start, he just understood the spirit of AUSTRALIAN GEOGRAPHIC. One of the primary reasons for the success of the journal was because AG became known for the incredibly good cartography. I was very fussy about accuracy and he was completely obsessed with making sure the maps were perfect."

With a smile, Will remembered his 'interview' with Dick a bit differently: "He said to me, 'I've got all these people working for me now who don't do what they're told. Why do I need another one?'" But soon Will was ensconced in his AG office, working on huge, world-first poster maps of remote areas such as Antarctica, the Canning Stock Route and the Birdsville Track. "The first map Will produced for AG was Australian Antarctica, a fantastic map inserted into our fifth issue and released in January 1987," says AUSTRALIAN GEOGRAPHIC's



Well before the advent of Google Maps, Will was cartographically documenting the Australian continent for AG.

"From the start, he just understood the spirit of AUSTRALIAN GEOGRAPHIC. One of the primary reasons for the success of the journal was because AG became known for the incredibly good cartography. I was very fussy about accuracy and Will was completely obsessed with making sure the maps were perfect."

Entrepreneur and founder of AG, Dick Smith, AC

founder editor Howard Whelan. "It was better than anything *National Geographic* had produced, and it was just the start. But if I had to choose Will's greatest map, it would be Australia for Adventurers and Dreamers. It accompanied the April 1990 issue, was revised and inserted in the October 1994 issue, and became one of the best-selling products in the Australian Geographic Stores for years to come.

"I've still got one hanging here in Terrey Hills and I look at it every day," Dick says.

Tony Gordon, AUSTRALIAN GEOGRAPHIC's creative director for 17 years, joins in the effusive praise. "Will Pringle's contribution to the amazing success of AUSTRALIAN GEOGRAPHIC in the early years was profound," Tony says. "Having someone on staff, literally in the next room, enabled the design and cartography departments to work closely together to develop the combination of illustration and map that we became admired for. Will's commitment to the fundamentals of map making – first and foremost accuracy – along with a passion for broadening the conventions of traditional map making by integrating illustration and photography, will create an enduring legacy. In the early years, remember, before the advent of the Apple Mac [computer] and desktop publishing, each line of type had to be manually typeset and glued onto a layer on the base map. [It was] a tedious process requiring time and skill along with a requisite proficiency in the art of typography. Will is internationally respected in cartographic circles for his innovation and has been invited to present at functions around the world – a unique cartographer whose contribution to the

“Will Pringle’s ability to bring the science of cartography alive together with a keen eye for design and a staggering geographical knowledge of Australia sustained the magazine for four decades.”

Former AG editor-in-chief, Chrissie Goldrick

“I consider Will to be the best cartographer this country has seen in the last 30 years or so. He was truly a legendary cartographer and someone I admired greatly.”

Head of cartography, Apple, Damien Saunder



Will (third from left) recently caught up with old AG mates (l to r) founding editor Howard Whelan, former chief sub-editor Jack Rozycki and founding art and production director Tony Gordon.

Australian map fraternity cannot be over-estimated.”

Will’s many awards included two 2005 MAPublisher Map Awards – an international competition showcasing the diversity and quality of maps produced with the MAPublisher software. Always looking for that next thing to make his maps even better, Will had a remarkable ability to change his cartographic practices over the decades to keep up with developments in the industry – from hand-drawn maps to early computer software and the use of highly technical satellites, to LiDAR remote-sensing data that was accurate to within a metre. “You’d get to a certain plateau in your career but then you needed to lift to the next level,” he said.

WITH HUMILITY, WILL expressed gratitude for his longevity at AUSTRALIAN GEOGRAPHIC and amazement at who he got to meet there. “I had an opportunity to meet a lot of people who under normal circumstances I wouldn’t have met,” he said. “I got to meet some great international cartographers. I had dinner with the Russian ambassador! Back in those early days people would even occasionally write a poem about me. Miraculous! Why would anyone do that for me? I’m very grateful for some of the friendships I’ve made with these guys over the years, particularly someone like Greg Mortimer [Australian Geographic trustee and first Australian to climb Everest, alongside Tim Macartney-Snape]. He’d always put his head in my doorway and say g’day.”

Former AUSTRALIAN GEOGRAPHIC editor-in-chief Chrissie Goldrick, who worked with Will for almost three decades and became a good friend, notes quality cartography has always been a key feature to the long-term success of the magazine. “It’s the

maps that have always elevated AUSTRALIAN GEOGRAPHIC and helped it stand out,” she says. “Will’s ability to bring the science of cartography alive together with a keen eye for design and a staggering geographical knowledge of Australia sustained the magazine for four decades. His dedication to accuracy, quality and artistry has allowed a generation of our readers to plan, or simply dream, of adventures to come. It was my privilege to work alongside him, learn from him and laugh with him for 26 years.”

Always one of the first in the office, and often working late into the night and at weekends, Will still had plenty of time for colleagues. If someone asked a cartographic question that he didn’t know the answer to, “he would soon be pulling out map after map from his drawers and spreading them across his desk, scouring them for a definitive answer”, recalls former associate editor Amanda Burdon. “Hours and sometimes days might pass, but he wouldn’t stop until he found it.”

Quietly spoken, with a deep, gravelly voice, Will had a wry sense of humour, and enjoyed a good laugh. If you asked him, for example, what he had for breakfast, he inevitably replied “a businessman’s breakfast – black coffee, a cigarette and two aspirin”.

“Good-natured, good-humoured and loyal, Will never had a bad word to say about anybody,” Tony says. “Generous to a fault, he was the epitome of the unselfish type who would gladly give you the shirt off his back.”

Will was lovingly supported by Diane, his wife of 42 years, until her passing in 2009. They had four children, Danielle, Rebecca, Amber and Heath.

As well as an extraordinary library of maps that will forever be treasured, Will’s legacy includes his mentoring of cartographers, both freelance and on staff at AUSTRALIAN GEOGRAPHIC, some of whom went on to set up their own cartographic businesses. “Will has been revered in the cartographic profession, not just in Australia, but the world over,” says CartDeco’s Craig Molyneux. “For Will, there was always a less-is-more approach to his cartography. His understanding of what the user required, balanced with clarity and sparseness, gave his maps a wonderful appeal that cartographers strived to emulate. Will also supported the cartographic profession in Australia in a number of ways. He enabled young students new to the profession to attend International Map Industry Association conferences by subsidising their costs – all out of his own pocket.”

Former director of cartography at *National Geographic* and head of cartography at Apple, Damien Saunder, considers himself fortunate to have worked with Will. “I consider Will to have been the best cartographer this country has seen in the last 30 years or so,” he says. “He was truly a legendary cartographer and someone I admired greatly.”

Fittingly, one of the last maps Will worked on commemorated the 40th anniversary of the first successful Australian climb of Everest. With characteristic good humour and a twinkle in his eye, he said doing the research for it was challenging because “none of those guys could actually remember the route”.

Will faced medical and other challenges late in life but remained appreciative of his time at AUSTRALIAN GEOGRAPHIC and the enduring friendships of his former colleagues. “I remember saying to Dick, ‘It’s been a great honour to work for you’ and he replied, ‘You didn’t work for me, you worked with me’.”

The Cobb & Co coach was a welcome sight in Australian country towns for a century. This image is from 1910 in St George, QLD.



HAIL THE COACH

STORY AND PHOTOGRAPHY BY **MANDY MCKEESICK**

It's been 100 years since the last Cobb & Co coach ran in Australia, between the tiny towns of Surat and Yuleba in South West Queensland.

THERE'S THE SLOW clip-clop of feathery steel-shod feet on pavement and the growl of a bullocky admonishing his charges. There are ladies in bonnet hats aboard sulkies pulled by ponies, and bow-legged men on frisky thoroughbreds. There are hay and wool bales. There's the smell of horses and warm whiskered breath; the beat of big hearts. This is the main street of Surat, in South West Queensland, 100 years ago.

The calm is shattered as a cream-coloured coach rattles past, pulled by five grey horses. Fred "Tommy" Thompson is in the driver's seat, and he's in a hurry. The mail must reach Yuleba, a rural town about 76km north east of Surat. The date is 14 August 1924 and this is the last Cobb & Co coach to run in Australia.

A replica of that horse-drawn vehicle, appropriately called the Tommy Thompson, usually resides as a static display in Surat's Cobb & Co Store Museum, but for 10 days in August 2024 it was given horses and came alive. The coach was the headline act of the Cobb & Co Festival, which every five years celebrates the contribution this iconic transport link made to inland Australia.

AERICAN BUSINESSMAN FREEMAN Cobb and his partners established stagecoach routes in Victoria in 1853 to service the goldfields by connecting people to trains, delivering the mail and hauling gold. Their reach extended to New

South Wales in 1862 and to Queensland in 1866. Although Cobb sold out less than a decade after establishing the mega-successful business, his name is forever associated with the company that ran coaches across Australia (and later established coach services in New Zealand, South Africa and Japan).

The Cobb & Co Festival is jointly held between Surat (population 402) and Yuleba (population 271), the two towns connected by the last mail run. I'm here in the centenary year of 2024, and people are arriving in their thousands to join the festivities. A small crowd gathers at the New Royal Hotel to reminisce and share stories. A poem called *Coaching Days* is read and in it is this line: "Jim Davidson, too, whose genial face, Beamed with joy as he went his pace; How happy he was with his team of greys; And the wild bush life in the coaching days."

"My grandfather and great grandfather were both called Jim Davidson and they both drove Cobb & Co coaches along the Surat-Yuleba route," Robyn Palethorpe says. "I think it's Jim Senior mentioned in the poem because he was well known for his team of greys. The three lead horses were named after his daughters – Pearl, Aileen and Florence."

Also in attendance are Nea MacCulloch and Bev Giveen, friends from Sydney who've been travelling with period outfits. Both will take their place on the coach in coming days. They proudly display old photos of their ancestor John Ireland, a



The Cobb & Co coach leaves the Surat Post Office for a modern re-enactment.



coach driver in 1828, long before Cobb & Co was founded. They share stories of travellers being thrown from the coach as it overturned on rough roads, when passengers were expected to help right it. The journey had to continue because mail needed to get delivered, so a sapling was tied to the undercarriage as a running repair.

ON THE EDGE of Surat, away from fractious horses, Rod Sansom, of Oakfield Ranch near Newcastle, is offering rides in his maroon and gold coach, the colours favoured by Cobb & Co in NSW. His coach is pulled by camels. “Cobb & Co would use camels in the outback desert country in places like Alice Springs and Broken Hill,” Rob explains. “In [desert] country, the camels trot along as fast as horses. They used this combination – three [camels] in the lead and two in the poll – because it was more manoeuvrable than longer teams.” Today, a camel named “Thirsty” is one of the three camels in the lead. “Thirsty is a good lead camel; you can talk to him and give him directions,” Rob says. Thirsty is also a racing camel and has been known to drink beer.

On a street by the river, the teamsters, having walked from Yuleba earlier in the week, are plying their trade. Phil Thomson’s bullocks amble from the shade, pulling a dray loaded with tourists. They work in tandem with the team from Marlie

Draught Horse Stud, driven, in turns, by operator Aleks Berzins and his offsiders Bruce Bandy and Shane Carroll: the Australian Draught Horses gleam, having been groomed and petted by Aleks’s daughters all morning.

There are a few teary, nostalgic eyes watching the teamsters. “My grandfather worked as a bullocky; my dad rode in the Cobb & Co coaches,” someone says in the crowd.

Over at the Cobb & Co Store Museum, 2000 visitors have filed through the door in one day. They’ve come to see Kathy Ellem’s evocative teamster artworks and to listen to coach-builder Stephen Ralph. Jeannette Young, the Governor of Queensland, is among the throng.

Overlooking the celebrations is a busy Joh Hancock, who owns the Surat Post Office. She’s also a Maranoa Shire councillor and an enthusiastic volunteer on the festival committee. “This festival is about celebrating our history, but it’s also important to put Surat and Yuleba on the map,” she says. “We’ve worked hard to make this a national event and that is validated by Australia Post and the Mint, which have released a commemorative stamp and coin. I look at Surat’s main street today and I see economic development, tourism and community coming together and I’m so proud of this small committee and their big hearts.”

Visitors are crammed inside the post office. The commemorative stamps are scored by postmarks, letters are ►



**The Duneske
Clydesdale team**
joins the centennial
re-enactment ride.

deposited into a canvas sack and Surat postcards are doing a roaring trade. “I’ve never written on a postcard,” a teenage girl says, instantly ageing everyone else in line.

IT’S SATURDAY MORNING and a procession of riders and horse-drawn vehicles heads across the Balonne River to begin the two-day, 76km re-enactment of the last run to Yuleba. Behind them, the Cobb & Co coach once again stirs the air, horses prancing to a stop before the post office where Joh, in 1920s rural attire, hands over the precious mail bag. Then they’re off.

Nea MacCulloch is among 12 paying passengers rolling to the gait of the five coach horses. Stagecoach travel may be romantic, but it’s also noisy, dusty, bumpy and stuffy. On hot days, it would have been hell. On cold days, hell froze over. As Cobb & Co often carried shipments of gold, passengers would also nervously watch the passing scrub for bushrangers. Today, the bushrangers are from the Surat Pony Club and they are met with water-pistol fire.

Hold-up averted, the horse-drawn vehicles and riders give way as the coach arrows through them, but they have their own stories and Cobb & Co affiliations.

“Lady Pearl, our waggonette, has the same leather thoroughbrace suspension as the Cobb & Co coaches,” Ian Stewart-Koster, of the Duneske Clydesdale Stud, says. “The quality of steel in the mid-1800s was variable and the roads and tracks coaches covered could be rough, so steel springs were susceptible to breaking. Leather thoroughbraces solved this problem. They are a collection of leather straps, mounted

As Cobb & Co often carried shipments of gold, passengers would also nervously watch the passing scrub for bushrangers.



Ava (5) and Zoe (7) Berzins prepare Marlie draught horses for a working day in Surat.

on the undercarriage, which support the body of the vehicle. This gives a forward and backward rocking motion, as well as a lifting effect if the coach should happen to bump into a log across the track.”

Joining Ian is his wife, Joan, Neil Hall and 14-year-old Bridgette Buckley, who’s learning the ropes and reins. Ian’s son Andy has other things on his mind. Andy and his girlfriend Lauren Booth have a more modern cart for two, adorned with the words: Cobb & Co Junk Mail – Daily Delivered with Style. It lends to their sense of humour, but this ride has special significance for them. “We met five years ago on this event,” Lauren says, “and we’ve parked the truck in the same spot for tonight. We’re going to celebrate.” This is somewhat of an understatement. Between the lunch and dinner camps, they secretly marry.

The emotional cavalcade stops every 10km or so, mirroring the Cobb & Co routes, where horses were swapped out at changing stations, allowing the coach to maintain speed and cover up to 80km a day. On this ride, passengers are also swapped. Bev Giveen, who sports a ruffled cap and eagerly awaits her turn, cannot wipe the smile from her face. She hails from Dee Why in Sydney, owns a half brumby, half quarterhorse and competes in barrel racing and flag events. Tonight, she will sleep in the front seat of her car. At 77, Bev could be the pin-up girl for this festival. “I’m horse and coach crazy,” she says.

The first day of the re-enactment ends on the Wallabella stock route, where newly installed troughs provide solace for thirsty

animals and camp-oven meals fuel riders. Bridget Macintyre, from Kilkivan in Queensland, is an endurance rider. She asks the vet to check the heartbeat of her heritage stock horse, Rocky. Rocky is doing just fine.

Also doing fine is Col Anderson, who’s driving her refurbished Jimboomba Royal Mail Waggonette. Not long ago she broke her leg while training for the ride and, with a plate and six screws inserted, is still moving slowly. “We’ve been working the horses specifically to get them fit for this event so I’m going the whole way and I’m loving every minute of it,” she says.

Dawn breaks on the final day of the 100-year re-enactment, and with it comes expectation. A steam train will meet the coach in Yuleba. The mail will continue its journey on conventional transport. Rod Sansom will be there with his camels, as will the bullocks and Australian Draughts. There will be singers and presentations and, appropriately, a display of vintage cars as it was motorised horsepower that eventually marked the end of Cobb & Co. Even Tommy Thompson, who drove the very last Cobb & Co coach, continued to deliver mail from a truck after 1924.

But in this moment, as the sun breaches the horizon and as horses are saddled or harnessed, the memory of Cobb & Co burns strong. Riders and horse-drawn vehicles leave early and once again, the coach is filled with passengers, the mail is secured under the box seat and the driver takes the reins. The coach departs, taking its energy with it and leaving those remaining with space to breathe and settle. History recedes. The coaching days are over. ■



Andy Stewart-Koster and Lauren Booth married in secret after the lunch break on the re-enactment ride.

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THE MAGIC OF THE HAVEN

STORY BY ALASDAIR MCGREGOR
PHOTOGRAPHY BY CHRIS ROUND

This stunning natural amphitheatre launched careers and provided almost a century of entertainment after being created in the 1930s by extraordinary architectural and landscape design duo Walter Burley Griffin and Marion Mahony Griffin.

Today, the Haven site is back to its stony bones but is still performed in just as was done a century ago.



Lights throw cast members into relief against a shadowy background of trees during a 1938 performance of *Antigone* in the Haven Valley Scenic Theatre, now known as the Haven Amphitheatre.

Walter Burley Griffin and Marion Mahony Griffin pose (below) at Castlecrag in Sydney, on 27 July 1930, for an informal portrait.



BACK IN 2015, a brilliant young musician named Valda Wilson was a principal operatic soprano with the Oldenburg State Theatre in Germany. This rising Australian star was well on the way to realising her artistic ambitions on the major stages of Europe. A long way from home, Valda wrote an impassioned letter to a Sydney local council, so concerned was she as to the fate of one of the city's small, and most unusual, cultural gems.

Valda grew up in Castlecrag, a suburb in the Willoughby local government area in Sydney's lower north shore. The harbourside enclave had – and still has – bush-swathed blocks and narrow sinuous roadways that, rather than fighting against the topography, yielded to its contours. Castlecrag is a suburb unlike any other in Australia. The land had been subdivided and partly built upon back in the 1920s and '30s by that extraordinary American husband-and-wife architectural and landscape design duo, Walter Burley Griffin and Marion Mahony Griffin. After winning an international competition to design a capital city for the newly federated Australia, the Griffins arrived in Australia from Chicago in 1914, just months before the outbreak of World War I. The Canberra project soon became mired in acrimony and political chicanery ... but that is another story.

While the Griffins' early years in Australia were spent in Melbourne, the temporary seat of the nation's capital, the bush-clad hillsides and jewel-like waterways of Sydney held a magnetic attraction. In 1921, they purchased an initial 263ha tract of land on Middle Harbour that they planned to turn into a model suburb, all the while adhering to the principal of designing and building with nature and not against her. The Griffins named their estate Castlecrag and moved back to Sydney in the mid-1920s. The adjoining Haven Estate was added in 1926. Because of their appreciation for nature and the rugged topography

The bush-clad hillsides and jewel-like waterways of Sydney held a magnetic attraction.



PHOTO CREDITS: TOP: COURTESY: WILLOUGHBY CITY LIBRARY. BOTTOM: NLA

Work proceeds on 30 March 1976 in preparation for the reopening of the long disused Walter Burley Griffin amphitheatre at Castlecrag.



that made parts of the land impractical to build upon, their subdivision would be endowed with a precious network of reserves. These were to be set aside for both nature preservation and community enjoyment.

So, what prompted Valda Wilson to contact the councillors of Willoughby City while busily forging her career on the other side of the world? Her concerns centred on one of the Griffins' small bushland reserves where some of her most precious and formative memories of growing up in Castlecrag were created.

But the area that so occupied her thoughts was much more than a leftover remnant of bush flanked by roads and houses. Within the Haven Estate is a forested reserve that stretches down to the harbour. And there in that beautiful little valley, replete with a small creek and embraced by stately angophoras and delicately fronded tree ferns, is an open-air theatre that the Griffins created in the early 1930s. Known initially as the Haven Scenic Theatre, and later the Haven Amphitheatre, this extraordinary space became a focus of much activity in the small but vibrant theatre scene in Sydney during the Great Depression. Marion was the Haven's intellectual driving force, with Walter providing the creative input in modifying the gully's terrain to create terraced stone seating and, on occasion, making elaborate theatre sets.

The theatre was built almost entirely by volunteers from the fledgling Castlecrag community. There was no stage as such, but the Haven's spectacular ensemble of natural rocky ledges and giant sandstone tors made for an organic drama that no indoor theatre could rival. Production lighting was often provided by car headlights, carbide lamps and kerosene lanterns.

Under Marion's lead, the theatre flourished for a few brief years. Most of the performers were amateurs, but as historian Jill Rowe has remarked: "The plays produced at Castlecrag were not home entertainments, nor was the mode in any sense 'little'. Rather, it ... [became] a matter of grand and memorable productions of great plays, most remarkable at night and in the open air."

Audiences of up to 150 would brave the hard seats and the unwanted attentions of mosquitos, with some of the memorable offerings including Shakespeare's *A Midsummer Night's Dream*, scenes from Goethe's *Faust*, and the Ancient Greek dramas *Electra* and *Antigone*.

In 1935, Walter travelled to Lucknow in northern India to work on an architectural commission for a university library. Extra work poured in, so Marion joined him there in 1936. But in early 1937 the unthinkable happened: Walter died. A devastated Marion came back briefly to Australia before returning to Chicago for good in 1938. With the Griffins gone, interest in the Haven dwindled.

BY WORLD WAR II, the lights had literally and metaphorically gone out and the gully was soon overgrown, choked by weeds and reduced to a dumping ground for household refuse. Much of the stone from the terraces somehow found its way into surrounding gardens, and the Haven lay in a forgotten and sorry state until the 1970s when local bush regeneration volunteers cleared the rubbish and rediscovered what remained of the seating. Local volunteers worked beside a building contractor to bring ►

the Haven back to life. Castlecrag architect Robert Sheldon designed a timber stage and his wife Patricia became the initial successor to Marion as the Haven's artistic maestro. In 1969, a visionary cameraman and film and television director named Howard Rubie took up residence on the Castlecrag waterfront. With relentless energy, Howard restored much of the Haven's magic until his death in 2011.

The first production at the reborn theatre was Oscar Wilde's *Salome*. To honour the Griffins, the production coincided with celebrations of the American bicentenary in 1976. Howard cajoled his professional colleagues to fill the major roles and provide backstage expertise. Volunteers did the rest. And so began a production pattern that endured until the Haven's second sad demise in 2016.

Some sections of the timber structure had begun to rot in the 1980s so the stage was partly rebuilt and extended in several phases between 1991 and '93. A greenroom and toilet facilities were added as an undercroft. The improved stage ushered in the Haven's glory years; throughout the 90s and 2000s, hundreds of shows were presented across a range of genres. Opera stars and jazz musicians, Shakespearean actors, cabaret artists, dance troupes and acrobats – they all trod the boards at the Haven and made the little valley ring with their glorious sounds. And all this was under an arc of stars, sun or the glow of a full moon and a close canopy of tree ferns painted with enchanting light. The likes of jazz greats James Morrison and Graeme Jesse, renowned composer Nigel Westlake, opera diva Elizabeth Connell and Canadian queen of cabaret Patricia O'Callaghan all thrilled eager audiences oblivious to the lack of a cushy seat or air-conditioned comfort.

And, of course, the Haven was where Valda, that little girl turned international soprano, got her start. In her letter to the Willoughby City Council, Valda wrote: "For most young people, a theatre visit means buying tickets and waiting to be entertained. But not for those of us who knew about the Haven. Here we were welcomed by an enthusiastic team of volunteers, many of whom had professional lives as musicians [and] actors. As children we were encouraged to ... learn about all the tricks of the trade by working alongside these talented people."



Throughout the '90s and 2000s hundreds of shows were presented across a range of genres.



A production of *The Wind in the Willows* goes ahead at the Haven in 2008 (left).

The ghosts of performers past who trod the "boards" can still be sensed today at the site.



PHOTO CREDIT: CHRIS ROUND

Valda's letter was a plea to the council to allow the Haven to "continue to nurture and encourage the creativity of young people and be a focal point of community involvement and celebration". But, at the time, the Haven was in peril.

The old stage was again somewhat the worse for wear, and the council declared it structurally unsound and non-compliant with current building standards. A proposal to replace the timber stage with concrete was opposed by a vocal faction, who declared the material anathema to the spirit of the Griffins. Acrimonious debate shattered the tranquility of Castlecrag. As the arguments to repair or replace the stage reverberated across the Haven gully, remedial works were deemed impractical by the council and a wasteful use of its funds. Pending a development application for a replacement, the council had no option but to send in a demolition crew. Plans were drawn for a new stage on a steel frame, plus disabled access to the site, but the design won few accolades among the community and the approval lapsed in 2023.

THE OCCASIONAL SMALL-SCALE or council-funded performance still occurs in the Haven gully, which is now back to much the way it looked in the 1930s. But the enchanted nights of those glory years are long gone, perhaps never to return – a tragedy for the Castlecrag community and the cultural life of Sydney and beyond.

Back home for a visit in 2015, Valda told one of her Haven colleagues the calming "mind exercise" she did before singing in front of 2000 people with the Orchestra of the Royal Opera House at the thanksgiving service in Westminster Abbey for Dame Joan Sutherland. She looked out at the invited luminaries in that vast space, with its towering, vaulted ceiling, and thought: "There are the candles at the Haven. It's all good. Just chill. There's the little creek and the trees overhead. You're safe."

She laughed, then added, "And then I sang quite well!" Such was the magic of the Haven. ■

Maryka and Masey
Malano collect spring
flowers on their property in
Honeywood, Tasmania.





THE SCENT OF TASMANIA

STORY BY JENNIFER JOHNSTON
PHOTOGRAPHY BY JAMES BUGG

Two Tassie perfumers are on a mission to bottle
the fragrance of Australia's island state.

A Silver wattle
(*Acacia dealbata*),
also commonly
known as mimosa,
is picked by the
Malanos on their
property. The
flowers are later
macerated in pure
organic ethanol.



FOUR YEARS AGO a man from a high-end interior design store laughed at Maryka Malano when she shared her dream of creating a unique Tasmanian perfume that showcased the island state. Now she and her partner, Masey, are crafting perfumes in their home in Honeywood, on Greater Hobart's northern outskirts, using fragrance extraction methods developed by ancient Egyptian alchemists. The Tasmanian couple have created an organic skincare and perfume range for their beauty brand, Malano, using traditional alchemy techniques of distillation and maceration (soaking aromatic ingredients in a base liquid such as alcohol or oil to extract its fragrance). And Maryka has her sights firmly set on creating a fragrance that captures the scent of Tasmania.

She strolls around her property's garden carrying a stainless-steel bowl, selecting native botanicals from various herbs, shrubs, and trees. "The only way I can imagine creating a Tasmanian native floral [scent] is by using what's on our property and some Tasmanian essential oils," Maryka says. "It would involve the three extraction processes: distillation, maceration and

enfleurage [pressing botanicals into a layer of fat or oil so it can absorb its fragrance] without over-harvesting the plant material. It will be different to any other perfume made in modern times and it won't be ready until 2028. It will likely only yield 50 to 100 bottles, so will be a limited-release special."

That man who laughed at her four years ago told her she'd never put Tasmania on the map for making perfume because the market would always be dominated by European fragrances, mostly from France or Spain, but definitely not Tasmania. Maryka remains undeterred and already knows what the fragrance will smell like. "Did you ever go into the middle of the bush somewhere in Tasmania and get all the heady smells of nature?" That's the scent she's going to bottle.

FOR THOUSANDS OF years, nature's aromatic substances have been carefully selected, extracted, distilled, refined, blended and then contained by perfumers. In the latter half of the 19th century, synthetic substances were introduced into fragrances as a cost-effective alternative to naturally derived ingredients.



Once the botanicals are depleted, she extracts the infused oil and bottles it.

Today, a handful of perfumers, including Maryka and Masey, have stood firm resisting the allure of these human-made chemicals, choosing to only use ingredients nature has provided. These creatives are crafting stand-alone perfumes that the world's discerning noses are noticing.

"We make our perfumes the old-fashioned way, based on ancient Egyptian and early French techniques," Masey says, explaining that the couple make their products by hand, using only naturally derived, high quality, cruelty-free ingredients.

Inside the lab, Maryka demonstrates the cold enfleurage ancient Egyptian technique to create scents. Cleopatra VII, the last active ruler of ancient Egypt before it was conquered by Rome, loved roses and geraniums. Her perfume merchant would have applied a technique similar to Maryka's – extracting the flowers' fragrances by placing them on a layer of animal fat, albeit in a much thicker and stickier form.

As Maryka works, she explains that her mother taught her about alchemy – the ancient art of transforming matter, such

as minerals or metals, into new forms or substances – when she was 11. She later received an associate degree in life sciences from the University of Tasmania and has since trained with the international fragrance company The Perfume Connection and support organisation PerfumersWorld. She is currently studying for an advanced diploma of naturopathy, with a focus on homeopathy and western herbal medicine.

Donning a pair of purple disposable gloves, Maryka reaches into a white container scooping out handfuls of (solidified) Babassu virgin oil, which is ethically sourced from the Amazon rainforest in eastern Peru. After working on the gooey paste and pressing it into the base of a deep rectangular glass dish, Maryka gently works in the botanicals, explaining she's careful not to compress the scent molecules. She covers the dish before setting it aside for up to four days for the fat to absorb the various scents. Once the botanicals are depleted, she extracts the infused oil and bottles it. This is repeated another 20 times to provide enough oil to make the 'Mother Scent'. This process began in November 2023, but the new floral scent won't ►

be ready until 2027 or 2028. “We cure over long periods, so the oils do their job by maturity, rather than using curing chemicals,” Maryka says. “It’s like ageing a fine whisky.”

MARYKA AND MASEY began experimenting with fragrances in late 2015, when Maryka gifted Masey candle-making equipment for Christmas. “I love candles but was dissatisfied with what was available,” Masey says. “Many candle-makers use chemical stabilisers to give a longer burn time, but chemical stabilisers affect the hot scent throw.”

While Masey experimented with perfecting the ‘right’ candle, Maryka worked on the scents until an accident in September 2016 altered things. At their home, Maryka fell three metres down a flight of stairs and damaged her spine, which required surgery and a month’s recovery in hospital. Rehabilitation took two years. With time to think during those rehab years, Maryka’s research into the harmful fillers and ingredients used in everyday commercial products such as candles, room sprays and perfumes, set off alarm bells. She was shocked to learn most consumers had no idea about the health impacts of certain chemicals, such as phthalates. After losing her sister to cancer a few years earlier, Masey had shifted towards a more holistic lifestyle.

Following a few deep conversations, the couple decided they’d create their own plant-based products for skin, hair, body and home using only the highest quality ingredients. They established a business plan, discussed product lines and branding and chose Malano as their brand name – a combination of both their maiden surnames, which they had legally changed to Malano in 2012.

In mid-2018 they launched their first product, an organic hand sanitiser. The following year, they began selling at Hobart’s

Salamanca Markets, where their naturally derived hand sanitiser was a novelty. When COVID arrived in Tasmania in early 2020, the product went gangbusters among the locals.

Masey is Malano’s creative designer, responsible for the look and feel of the brand. She’s also the chief gardener and has planted more than 400 trees, shrubs and herbs since the couple began candle-making. Even more plants have been added for perfume crafting. “Before creating a new perfume, Masey and I discuss a concept,” Maryka says. “I then develop stories, imagining how the individual oils will work together. Masey leaves the ingredients to me. I do meditation and walk on our land for inspiration. I draft a fragrance pyramid, visualising the aromas. After many months crafting a new scent story, I’ll blend absolutes, essential oils and isolates from botanical materials.”

To create a scent, perfumers use top, middle and bass notes. “The top note is a headliner [that] announces, ‘I’m here!’ Usually it’s a citrus or light herb, like a lemon, grapefruit, blood orange, bergamot, mint, sage or basil,” Maryka says. “Headliners are volatile oils – something that’s strong initially, but dies down [or] settles quickly, within five to 20 minutes. On some people it lasts longer, depending on their body’s chemistry. The middle note is the heart that gives soul and brings the bass and the headliner together. The bass is a foundational note.”

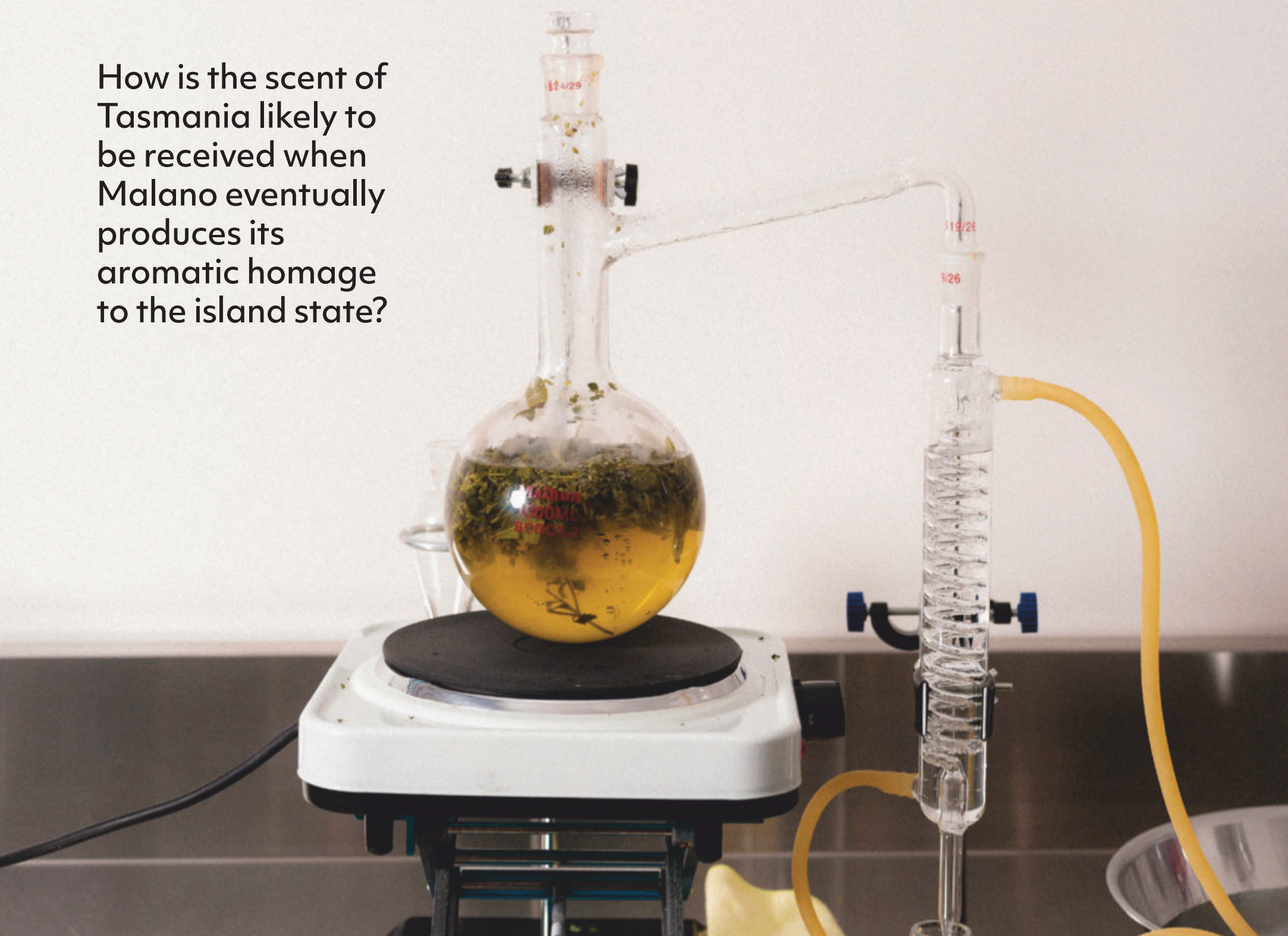
Maryka’s fragrance pyramid has four layers. “To add a layer of complexity I use additional notes, an evolving undertone in between the heart and the foundation,” she says. For example, the ‘headliners’ in Malano’s Cigar Vert fragrance are green mint, sage, basil, rosemary and lemon. The less volatile heart is a mix of angelica, coriander, wormwood, juniper, black pepper and lemon verbena. Foundation notes include oak moss, pine needle, balsam and cedarwood.



The process of burning sage and macerating it in Tasmanian boutique whisky (left), provides an earthy, smoky vibe to the Malano perfume.

Native mint bush (*Prostanthera* sp.), which smells like a cross between sage and regular garden mint, is distilled (right) in the alchemical lab distiller.

How is the scent of Tasmania likely to be received when Malano eventually produces its aromatic homage to the island state?



HOW IS THE scent of Tasmania likely to be received when Malano ultimately produces its aromatic homage to the island state? Horticulturist Angus Stewart thinks the use of Tasmanian botanicals is significant and is part of a wider movement tapping into the natural botanical bounty of Tasmania.

“People love Tasmania for its natural environment and the essential oil industry is a compatible part of it,” says Angus, who’s been studying Australia’s native botanicals for more than four decades. He’s written several books, taught on the subject, and presented on ABC’s *Gardening Australia* program for 13 years. He moved from the mainland to Tasmania eight years ago and has a farm on the Tasman Peninsula.

Angus helped a friend, Carey Badcoe, start a business called Pure Oils of Tasmania, which makes essential oils using native Tassie botanicals to create unique aromatic and therapeutic Tasmanian natural oils, free of harmful chemicals.

Historically, Tassie’s Indigenous people, like all Australia’s First Nations people, have used a wide variety of native

plants, certainly as medicines. “It’s prudent to acknowledge that traditional knowledge from First Nations people, which supplements modern scientific knowledge,” Angus says, revealing that, unfortunately, the mainstream pharmaceutical industry has manipulated that Indigenous holistic relationship with nature. “Pharmaceutical companies have stepped in, isolating active ingredients and distilling them into little pills, which provide a lot of medicines but removes the more holistic aspect of essential oils, using them instead to mix different compounds together.”

Angus believes there’s untapped potential in native species, such as the Tasmanian blue gum (*Eucalyptus globulus*) and white kunzea (*Kunzea ambigua*), within the traditional botanical essential oil market. White kunzea not only has potential medical applications but is also used in culinary pursuits, including gin flavouring. He is hopeful various other Tasmanian plant species will be embraced and produced in the state to create further local connections. Perhaps once the world gets to smell what Tasmania has to offer, other opportunities will follow. ■



Clever suckers: An octopus's arms are covered in hundreds of suckers, each capable of gathering information to help the arms act independently – or to send to the brain when there's trouble.



SERIOUS SEA SMARTS

STORY BY **SHEREE MARRIS**

Octopuses are sparking
innovation and
inspiring us in ways we
never thought possible.

A WALL OF bright signs warn me before I step closer: “Dangerous Animals – Do Not Touch”. As I carefully inch closer to the aquarium tank, I notice that sitting inside in a shell is an inconspicuous animal no bigger than a golf ball. A series of striking, metallic blue markings appear magically over its body, and it stretches its rubber-like arms to close the two shell pieces together, vanishing from view.

“Meet the most intelligent invertebrate on the planet,” Dr Wen-Sung Chung announces as he proudly introduces his “blueys” – blue-lined octopuses – that form part of his research. He’s studying the nervous system and behaviour of cephalopods, the group of molluscs that includes octopuses and squids. Despite their appearance, these tiny little blueys can be deadly, especially if you’re a crustacean. They carry tetrodotoxin (TTX), a neurotoxin for paralysing prey that’s 1000 times more potent than cyanide. But these creatures are far more astounding than the fearsome reputation that proceeds them. They have truly remarkable intelligence, evident in behaviours such as the tool use I just witnessed with a shell. It’s a surprising sign of higher cognition usually only seen in vertebrates such as birds and mammals.

A RISTOTLE, ONE OF the greatest minds in history, claimed octopuses were “dumb”. But they have some serious sea smarts that seem to defy logic. They’re unlike anything in the animal kingdom, having survived ice ages and asteroids, outliving dinosaurs and spreading their arms to survive in every part of our oceans. In captivity, tales abound of these marine masterminds navigating complex mazes, unscrewing lids and outsmarting aquarists by escaping their tanks and raiding neighbouring ones for food. In the wild they team up with fish to hunt, rewire their own brains when it gets too cold and can even change colour, despite being colour-blind.

The mimic octopus, which lives in sandy habitats devoid of any shelter, even impersonates some of the ocean’s deadliest residents. Its repertoire includes lionfish and stingrays and it can choose which species to mimic based on the threat it faces. If harassed by a damselfish, for example, it transforms into a sea snake.

Wen-Sung’s fascination with these otherworldly animals

began at Taiwan’s National Museum of Natural Science with a preserved giant squid. Their “weirdness” captivated him, inspiring a life-long career that has included some significant breakthroughs such as the discovery of cephalopod statolith structures, which allow octopuses and squid to detect sound pressures and hear.

An opportunity to take up a residency at The University of Queensland saw his journey come full circle when he became part of an international team filming the enigmatic giant squid at 750m using the deep-sea camera platform Medusa.

Wen-Sung is now an expert in cephalopod visual ecology and neurobiology. For the past decade, he’s been on a mission to unravel the secrets of octopus adaptability and cognitive abilities. It’s groundbreaking research that not only offers a window into the surprisingly sophisticated lives of cephalopods but is also inspiring human innovation.

JOIN WEN-SUNG on one of his research expeditions at Minjerribah (North Stradbroke Island), home to The University of Queensland’s Moreton Bay Research Station. The island is the perfect location for his work. Its diverse habitats of sandy plains, seagrass meadows and vibrant reefs are home to more than 10 octopus species, including the blue-lined, reef, hammer, red-spot night, scribbled night, plain-spot, veined and southern star-eyed octopus. In fact, Australia could be considered the octopus capital of the world, boasting more than 70 of the 300 species documented globally.

Armed with booties, gloves, buckets and nets, we make our way across the sandy flats, navigating around armies of soldier crabs, and shuffle out into ankle-deep water. Finding octopuses is like playing a game of hide and seek with the world champions of the game. They don’t just blend in: they become part of their surroundings, breaking up the outline of their bodies in magical ways that is nothing short of marine sorcery.

Luckily, Wen-Sung knows the telltale signs. “You really need to understand the biology of the animals to find them,” he explains. It’s not long until he calls me over with excitement, pointing to what looks like nothing more than a tuft of seaweed. Amused by my puzzled face, he traces the outline of eight arms. It’s a cryptically camouflaged algae octopus. Not only has it taken on the colour of the surrounding seaweed, it’s changed the texture of its skin to match. It’s the ultimate 3D camouflage – unparalleled in the animal kingdom.

At nightfall, we head back out with our underwater torches to search for nocturnal octopus species, which would now be emerging from their daytime slumber to feast. Fish are darting around us as we wade through the shallows and our torch beam lights up a resting wobbegong shark.

It draws our attention to something bright red nearby that quickly vanishes into the sand – the red-spot night octopus. It’s an impressively large species nearly a metre long. Wen-Sung inspects the deep tunnel the octopus disappeared into. We need to be on the lookout as it may pop up elsewhere, because these crafty cephalopods often create multiple escape tunnels – another sign of intelligence.

What drives this level of brainpower in an invertebrate? The simple answer is survival. Millions of years ago, octopuses followed a different line of evolution to their clam and snail ►



Cephalopod scientist Dr Wen-Sung Chung’s work on the blue-lined octopus is providing valuable insights into octopus intelligence.

OCTOPUS NERVOUS SYSTEM

Located between the eyes and shaped like a donut wrapping around the digestive tract, the octopus brain is as otherworldly as its body. This structure means an octopus needs to break up its food into small enough pieces to ensure it doesn't pierce the brain. Fortunately, an octopus has a beak, toothed tongue and flesh-dissolving saliva to help do the job.

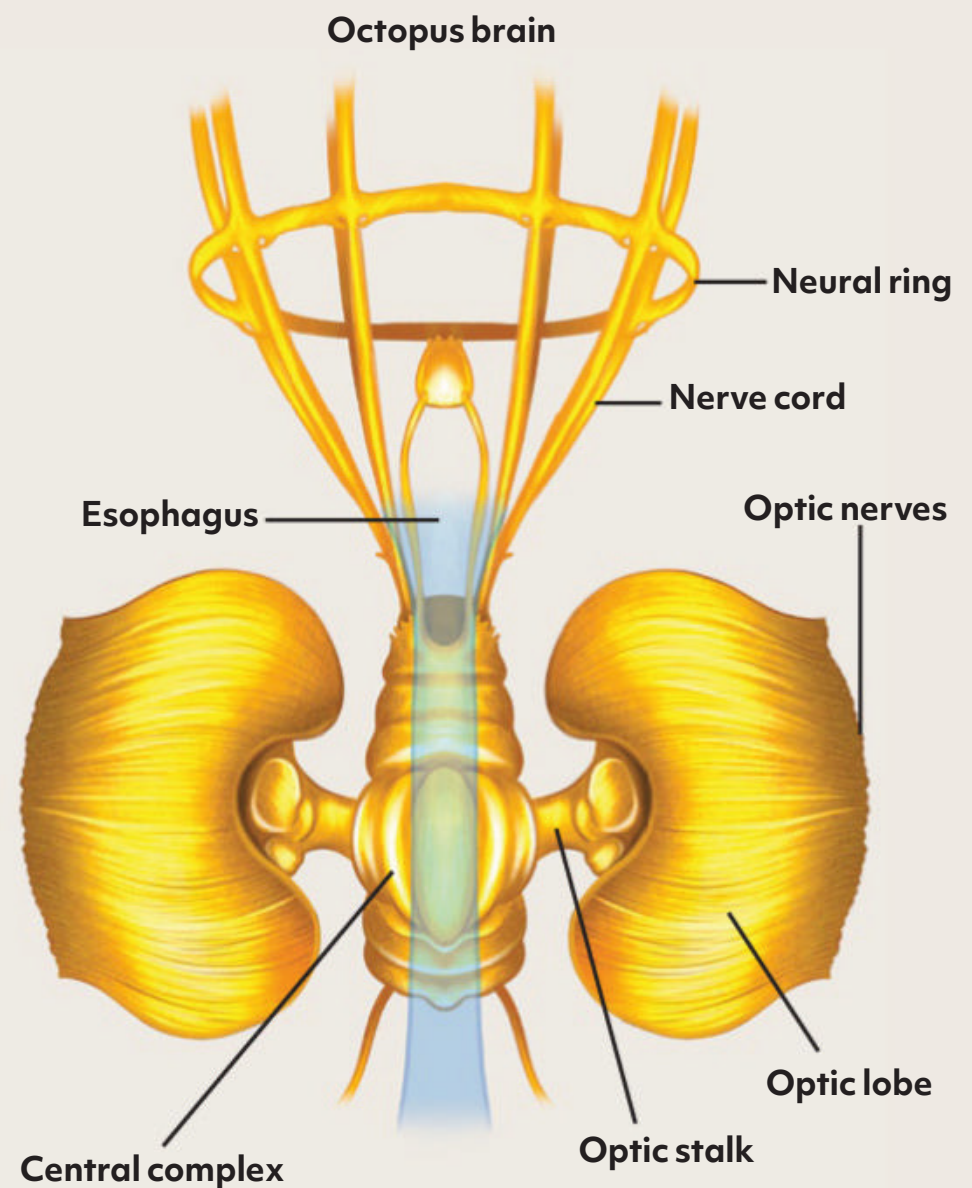
Structurally, the octopus brain shares some surprising similarities with our own. It's bilaterally symmetrical, features complex folding patterns and contains a central processing area, called the central complex. This core part of the brain is made up of 35 functional lobes that integrate sensory information for decision-making, chemosensory function, locomotion, learning and memory storage.

Octopus smarts aren't just confined to the head. While these animals don't boast an additional eight brains, their 'intelligence' is spread throughout their body in a web of nerve cords that flow down each arm (see yellow lines on image below).

Two-thirds of an octopus's 500 million neurons are distributed throughout its arms – a peripheral nervous system that comprises dense ganglia, which can have as many as 10,000 neurons to control the suckers while they touch and taste as the arms explore the environment. These are all linked together to create a network that feeds back information to the arms and up the nerve cords to the neural ring, which scientists hypothesise is a way of integrating all the information. This design gives the arms autonomy, allowing low-level decisions to be made independently of the brain.

During everyday functions, such as exploring a surface, tasting can be handled locally, allowing the central brain to conserve energy and process visual inputs. When a quick response is required, such as escaping a predator, they all work together, with the brain leading the charge.

This unique neurology enables some species, when threatened, to deliberately drop arms that continue moving as a decoy, while the rest of the animal escapes. Like lizard tails, these can regrow.





relatives by shedding the hard shell, trading security for freedom and flexibility. It made them into a tasty piece of unprotected protein in an environment where just about everything is looking for a meal.

To survive in the diverse habitats they share with a range of predators, octopuses have developed ingenious survival strategies. They're also born into a world without parental guidance and have short lifespans, which means they must learn fast and constantly adapt. All this is done while processing multiple visual inputs, controlling eight agile arms with hundreds of information-gathering suckers, and coordinating millions of colour-changing skin cells. It's enough to make your head spin – and certainly requires serious brainpower.

To investigate how all of these behaviours can be coordinated, Wen-Sung has been mapping the brains of various species of octopus and studying the structure and organisation of their nervous system, from hatchling all the way through adulthood.

To achieve this, he's needed to modify existing MRI techniques by deviating from the standard protocol settings usually reserved for vertebrate brains such as those of humans and other mammals, which are more rigid with different neural pathways compared to the soft brain tissues of octopuses.

After hundreds of hours and much trial and error, he was able to successfully scan the brains of various octopus species in high resolution and, in a world-first, capture and map their complicated neurology in 3D. The insights this provides have been ground-breaking and changed what we thought we knew about the brains of these marine masterminds.

MOST OF OUR knowledge of the octopus brain has been based on research from the 1950s and the exploration of cognitive ability restricted to a single species, the common octopus, an accessible and abundant species that's easy to keep in captivity. With more than 300 octopus species worldwide, this research certainly hasn't painted a comprehensive picture of the intelligence or brains of the group as a whole.

This is why Wen-Sung's work and the incredible ►

The cryptically camouflaged algae octopus (above), another of Wen-Sung's study subjects, uses remarkable 3D mimicry to blend seamlessly with marine plants by changing both the texture and colour of its skin.

With no protective armour, octopuses, such as this day octopus (right), rely on ingenious strategies to deter predators, including making themselves seem larger and more intimidating.



A large, purple and brown octopus is resting on a sandy ocean floor. The octopus has a textured, wrinkled skin and its tentacles are spread out. The background shows the sandy bottom and some blue water. The text is overlaid on the right side of the image.

To survive in the
diverse habitats
they share with a
range of predators,
octopuses have
developed ingenious
survival strategies.

The common octopus has a large, complex brain that allows it to survive and thrive worldwide in a wide range of habitats against an assortment of predators.



breakthroughs he's made are so important. One of his discoveries is that the octopus brain continues to grow throughout the lives of these animals. It can grow 100 to 5000 times in volume from hatching to adulthood, and the rate at which this growth proceeds is ridiculously fast, when you consider the average lifespan of an octopus is only two years. Compare that to human brains, which reach maximum size at 14 or 15 years of age, then start to gradually shrink.

As with the human brain, however, and unique among invertebrates (excluding their squid relatives), octopuses exhibit brain-folding, which is a sign of intelligence. The more folding there is, the more surface area is created, allowing more neurological inputs and greater processing power. Octopuses have the largest brain size-to-body ratio of any animals, which makes sense, given all the multi-tasking they do. This also tells us that the octopus is investing a significant amount of energy into its nautical noggin.

One of Wen-Sung's biggest discoveries has been that not all octopus brains are the same. The design, level of folding and size of the visual processing centre of an octopus brain, are influenced by habitat and lifestyle and vary between species. For example, the reef octopus, which is only active during the day, has a more complex brain and larger optic lobes compared to the nocturnal blue-lined octopus.

CORAL REEFS ARE busy and challenging environments to live in. The reef octopus has to process a large amount of information and camouflage is important to its survival. The species has the highest number of colour-changing cells of any species and has been recorded changing its appearance more than 300 times in a day. It's also the species that has been recorded cooperatively hunting with groper to flush fish out of coral bommies.

To support his work and explore the ability for the brain to change, adapt and learn – known as neural plasticity – Wen-Sung has also conducted a range of experiments to test octopus intelligence. This involved food incentives and problem-solving challenges such as identifying different shapes. “The most compelling evidence of intelligence is just how quickly they learn,” he says. He has even taught one octopus to count. It's evidence that octopuses have brain structures, such as memory and learning centres, that are functionally similar to those in mammals, positioning octopuses as a valuable model group for neurophysiological studies in other higher-order species.

Scientists have even recently discovered octopuses can edit their own physiology to adapt to temperature change by editing their RNA (ribonucleic acid), which is responsible for reading and decoding information in the DNA, to build proteins to carry out cellular function. Unlike DNA-driven evolution, which takes generations, octopuses can make these changes in days, which is truly extraordinary.

The significance of Wen-Sung's work and the benefit of it, even to us humans, can't be underestimated. Creating a brain template that maps and understands octopus neurology will open the gate to understanding evolution of not only cephalopods but of land-based animals.

His work is also opening up a wealth of opportunities for human innovation. Octopuses are fast becoming marine muses



Octopuses are the only invertebrate known to use tools. This coconut octopus uses empty shells and even coconuts as a mobile fortress.

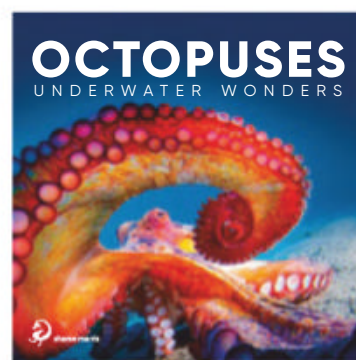
for us mere mortals, sparking innovation and inspiring us in ways we never thought possible. The hormones that spur rapid brain growth in an octopus could prove useful for people who need growth stimulants.

Understanding the flexibility and remarkable autonomy of octopus arms that comes through a simple neural network (see breakout, page 75), could have applications for the engineering of soft robotics able to be used in natural disasters for accessing collapsed buildings or navigating terrain inaccessible to humans. Researchers are also exploring how octopuses can deliberately detach and regrow limbs – a process that could one day inform treatments for neural injuries or regenerative medicine.

For all the danger signs on the tanks where Wen-Sung keeps his blueys, there's a deeper irony. The same venom that ensures humans keep their distance may one day help save lives. Research on the southern sand octopus has uncovered a compound in its venom that shows real promise in slowing the growth of cancerous melanoma cells.

Wen-Sung's work underscores how truly extraordinary octopus brains are and he's only just begun to unravel their mysteries. “Octopuses are the epitome of discovery science,” he says. “The more I find and watch, the more I realise how much is still to learn about these weirdly wonderful animals.” It's impossible not to be swept along by his energy and enthusiasm.

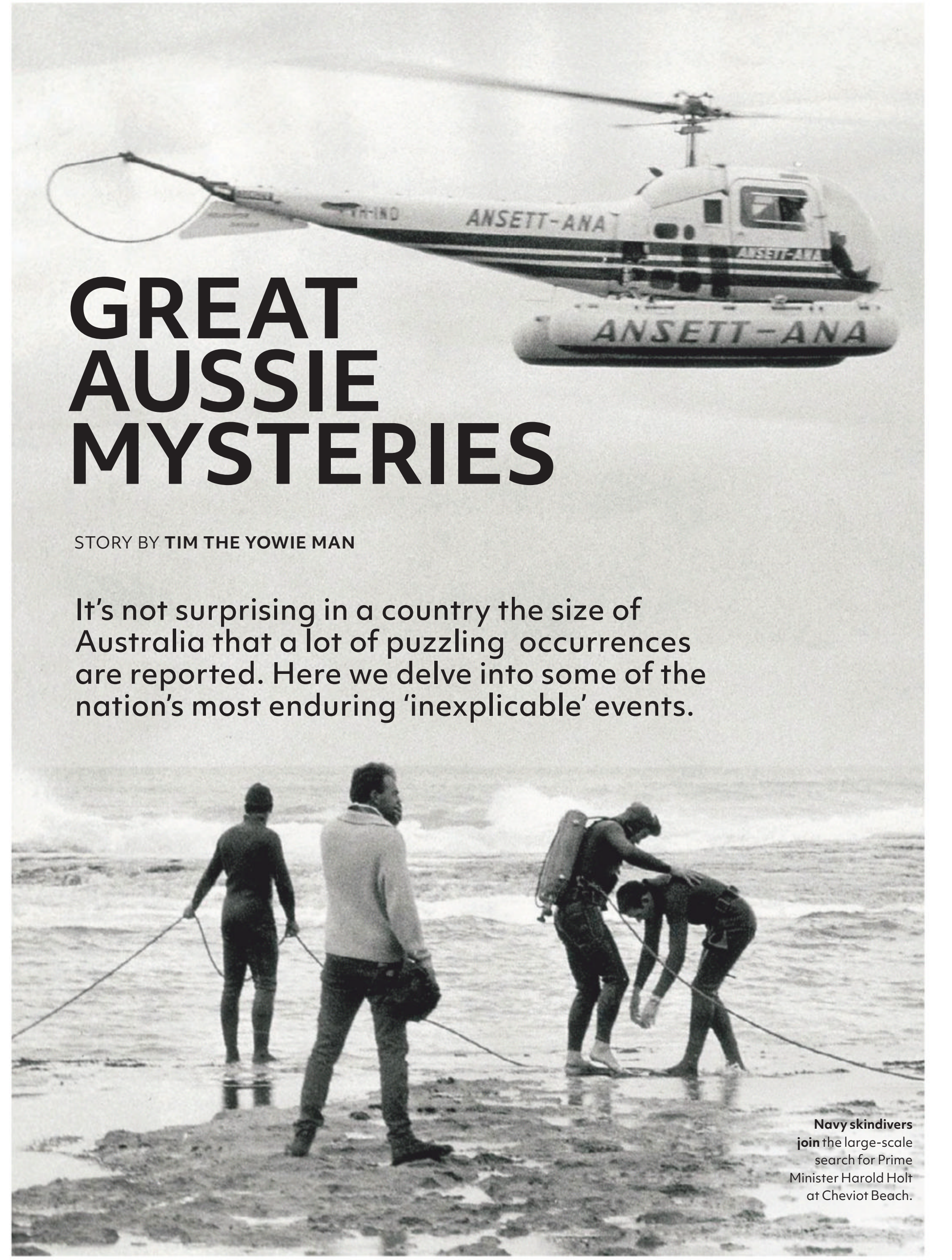
We humans like to think we're the clever ones, but these eight-armed teachers have some valuable lessons to share, proving that brains come in all shapes and are sometimes even shaped like a donut. Who's dumb now, Aristotle? ■



Read more

The latest book by Victorian-based marine scientist Sheree Marris, *Octopuses: Underwater Wonders*, is a stunning journey into the lives of these otherworldly creatures

More info: octopusesbook.com



GREAT AUSSIE MYSTERIES

STORY BY TIM THE YOWIE MAN

It's not surprising in a country the size of Australia that a lot of puzzling occurrences are reported. Here we delve into some of the nation's most enduring 'inexplicable' events.

Navy skindivers
join the large-scale
search for Prime
Minister Harold Holt
at Cheviot Beach.

The case of the vanishing PM

Status: Solved

You don't need me to tell you Australia boasts a coastline of beautiful beaches ... more than 10,000 of them, in fact. While some stretches of sand such as Surfers Paradise and Bondi are iconic, many others remain hidden and relatively unknown to all but those who keep them a closely guarded secret.

Until a hot and humid morning in the summer of 1967, Cheviot Beach, on Victoria's Mornington Peninsula, was one of those. However, after Prime Minister Harold Holt decided to take a dip in its waters on Sunday 17 December, this surf beach entered our national psyche forever. And it was for all the wrong reasons.

Although the nearby patrolled beach at Portsea was closed because of especially rough sea conditions, the 59-year-old PM, clad in his trademark blue swimming trunks, didn't hesitate diving into the surf off his favourite patch of sand. "I know this beach like the back of my hand," Holt famously boasted.

He was an excellent snorkeller and let everyone know about it. In fact, he played up to his image as the outdoorsy PM and was photographed in the London press in his wetsuit and surrounded by three bikini-clad women (his daughters-in-law). Apparently, it was good for votes.

Although he was competent in the water, Holt found it difficult to swim freestyle due to a persistent shoulder injury he sustained playing football at university. To compensate for this, during long speeches delivered by his colleagues in the House of Representatives Chamber at Parliament House in Canberra, Holt sometimes practised holding his breath for as long as he could. Mmm. Starving the brain of oxygen – I guess that's one way to make parliamentary debate more exciting.

On the sand with gung-ho Holt that fateful morning were four others, including Marjorie Gillespie, Holt's Portsea mistress. (Apparently, he also had lovers in Sydney, Melbourne, Canberra and Hong Kong.) Like US president John F. Kennedy, who allegedly courted 13 mistresses, Holt's infidelity was swept under the carpet and, as a result, Marjorie's presence at the beach was initially not reported by the police.

In fact, there are some accounts she was rushed away from the beach in the boot of a car to protect her from the prying media.

Holt's demise was quick because almost immediately after diving in, he vanished beneath the water.

In one of her rare public statements before becoming a recluse, Marjorie recounted the tragedy.

"He was like a leaf being taken out. It was so quick and so final," she said.

"Holt lost in sea," screamed newspaper headlines and, despite one of the biggest air and sea searches in our country's history, Australia's 17th prime minister was never seen again.

The public struggled to comprehend that anyone, let alone the prime minister, could simply vanish without a trace.

This resulted in many rumours, accusations and conspiracy theories to explain his disappearance, including that



Prime Minister Harold Holt, a keen skindiver, often posed for photos at the beach. This time with his daughters-in-law, circa 1966.

he was assassinated by the US Central Intelligence Agency, supposedly for his imminent withdrawal of Australian troops from Vietnam. The next year, the US Navy named a frigate after him – USS *Harold E. Holt* (FF-1074), to put pay to some proponents of that plot.

Another provocative theory that gained widespread coverage but received limited traction was suggested by Ronald Titcombe, a former Australian Navy intelligence officer, and published in Anthony Grey's book, *The Prime Minister Was a Spy* (1983). Titcombe proposed that Holt was a Chinese communist spy, and that two frogmen from a midget submarine lurking offshore spirited him away to freedom and his Chinese masters.

Several years later, Dame Zara Bate, Holt's wife, drolly denied the outlandish theory: "Harry? Chinese submarine? He didn't even like Chinese cooking."

Holt once asked his press secretary, Tony Eggleton, "What are the odds of a PM being drowned or taken by a shark?" And although we aren't privy to Tony's answer, they were clearly much higher than Holt bargained for. A Coronial Inquest in 2005 found "death by accidental drowning in rough sea conditions".

Just don't try telling that to the conspiracy theorists.

Holt's briefcase

SQUIRRELED AWAY IN the collection of the National Archives of Australia in Canberra, in the shadow of Harold Holt's former workplace, Old Parliament House, is the very briefcase Holt took with him on that tragic trip to Portsea in December 1967.

Occasionally, the archives display some of the objects that were found in the brown leather case, which has his monogram *HEH* embossed on the front. Its contents include a couple of combs, a bulldog clip and part of a theatre ticket.

Following his death, the police admitted to adding several documents to his briefcase that they found lying around his holiday house in case they contained sensitive material related to the Vietnam War. While they didn't end up containing any Vietnam papers, the documents reflected his heavy workload and his involvement in a bitter internal dispute between his deputy John McEwen and treasurer William McMahon, both future prime ministers.

Lasseter's Reef

We (unfortunately!) can't provide a map of Lasseter's Reef, but you can visit these three locations:

Lasseter Highway, the sealed 244km highway that connects Kata Tjuta and Uluru to the Stuart Highway, is named after Harold Lasseter.

Kulpi Tjuntinya (Lasseter's Cave), the small cave in the Petermann Ranges near the NT-WA border where Lasseter sheltered for 25 days in January 1931, after separating from an expedition to rediscover his supposed reef. He perished after attempting to walk to Kata Tjuta, only making 55km of the 140km journey, and was buried in a basic bush grave. **Lasseter's Final Grave**, where in 1958 Lasseter was reinterred in the Alice Springs General Cemetery.

Wycliffe Well

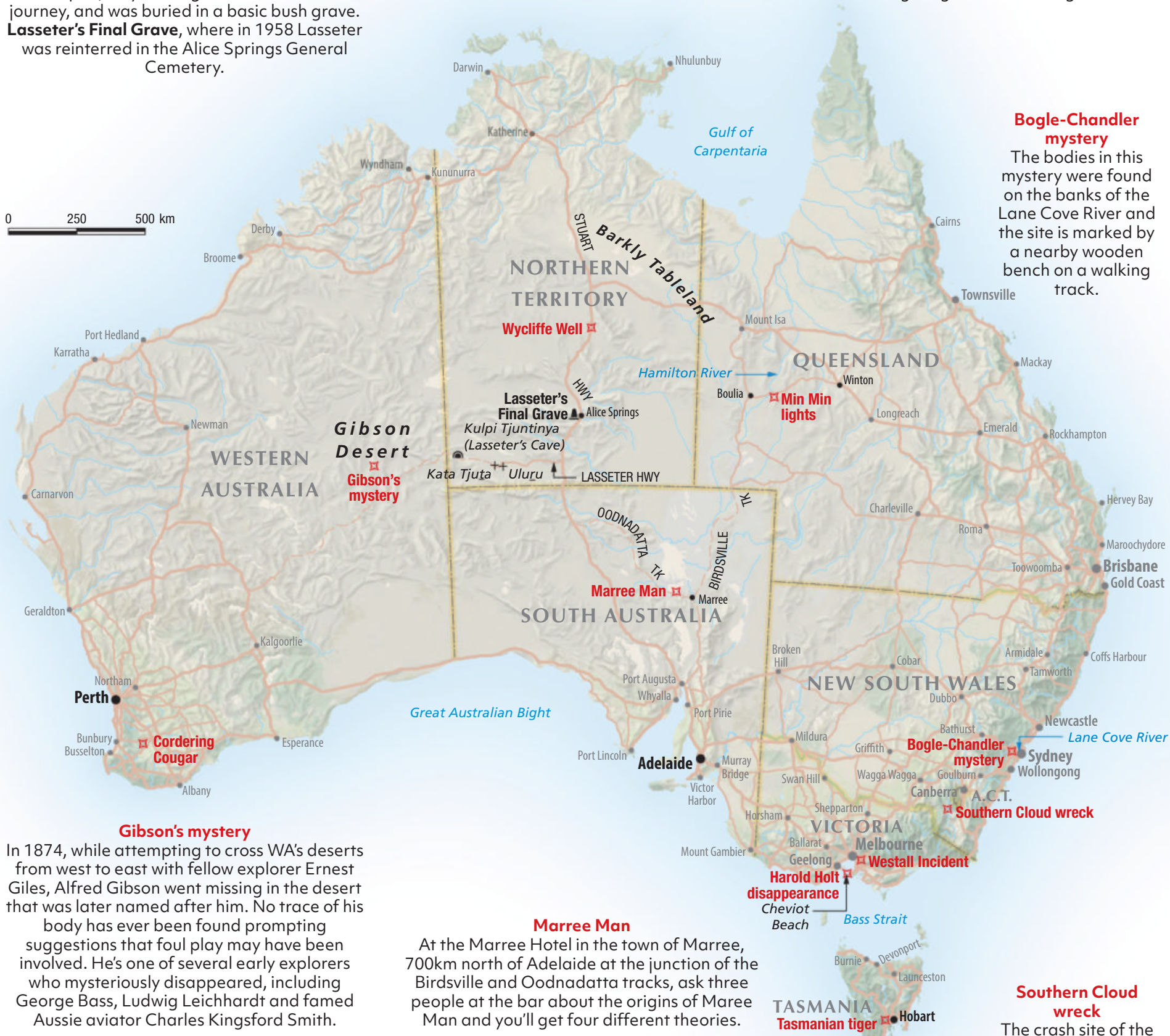
This tiny settlement on the NT's Barkly Tableland is known for unexplained extra-terrestrial sightings. Although abandoned after a December 2022 flood, the tourist park and roadhouse here were at the centre of an area that's long been regarded by ufologists as one of the best places in the country to spot a UFO.

Min Min lights

First Nations people knew of these lights before European settlement, believing they were the *debil debil* – souls of departed relatives. The epicentre of the modern phenomenon is the former Min Min Hotel, which was located between Boulia and Winton, where strange lights were seen in the 1890s over a graveyard at the rear of the hotel. There's not much left there now, just broken glass, rusting nails and sheets of iron near the old cemetery; definitely not the friendliest place to be in the dark, but you never know, you may be rewarded with your own sighting of the fabled lights.

Bogle-Chandler mystery

The bodies in this mystery were found on the banks of the Lane Cove River and the site is marked by a nearby wooden bench on a walking track.



Gibson's mystery

In 1874, while attempting to cross WA's deserts from west to east with fellow explorer Ernest Giles, Alfred Gibson went missing in the desert that was later named after him. No trace of his body has ever been found prompting suggestions that foul play may have been involved. He's one of several early explorers who mysteriously disappeared, including George Bass, Ludwig Leichhardt and famed Aussie aviator Charles Kingsford Smith.

Cordering Cougar

There have been numerous mysterious 'black panther' sightings along Australia's East Coast. But WA's SW corner is a hot spot for big cats of different colours, notably the Cordering Cougar – said to be a large sandy coloured cat-like creature reported in the Cordering area in the Wheatbelt since the 1970s. A two-year investigation by WA's former Agriculture Protection Board failed to find any evidence that cougars had ever been introduced to WA, but the sightings continue.

Marree Man

At the Marree Hotel in the town of Marree, 700km north of Adelaide at the junction of the Birdsville and Oodnadatta tracks, ask three people at the bar about the origins of Marree Man and you'll get four different theories.

Harold Holt disappearance

At Cheviot Beach, bolted to a rock in shallow water off the shore is a plaque that states "*in memory of Harold Holt who loved the sea and disappeared hereabouts December 17 1967.*"

Westall Incident

This is commemorated by a playground featuring a silver UFO with red slides at the Grange Reserve UFO Park at Clayton South.

Tasmanian tiger

The former Beaumaris Zoo in Hobart is where the last known Tasmanian tiger died on 7 September 1936. You can see specimens at the Tasmanian Museum and Art Gallery in Hobart.

Southern Cloud wreck

The crash site of the *Southern Cloud* is near the Ogilvie's Creek fire trail off the Cabramurra-Khancoban Rd. Warning: the wreck site is not signposted and due to its remote location, the 15km return trek to the wreck should only be undertaken by experienced bushwalkers.



Marree Man as viewed from a scenic flight in June 2018, two years after it was 'touched-up' by locals.

Riddle in desert sands

Status: *Unsolved*

Australia isn't known for geoglyphs – large designs in the landscape made by people moving soil or stones. That changed on 26 June 1998, when outback charter pilot Trec Smith spotted an extraordinary sight from the air – a 4.5km-long warrior carved into a barren desert plateau near Marree in outback South Australia.

Suddenly, Australia lay claim to one of the biggest – and certainly, the newest – geoglyphs in the world. However, despite a blaze of world-wide publicity, no one claimed responsibility for the colossal creation that was initially dubbed 'Stuart's Giant', a reference to highly accomplished 19th-century European explorer John McDouall Stuart.

Satellite imagery indicated the site was undisturbed just two weeks prior to its discovery, and the Marree geoglyph's rapid appearance led to a host of theories, ranging from the far-fetched "aliens have done it" to a marketing campaign for a soon-to-be released product (that never eventuated).

The precision with which the figure was carved into the stony surface of the desert – before the widespread use of GPS technology – also prompted suggestions the oversized warrior, soon re-named Marree Man, must have been the handiwork of a covert professional group with access to state-of-the-art survey equipment.

Those first to see it up close on the ground reported it was likely created with a tractor pulling a scarifier, a type of scraper. Some were convinced it was the creation of the Department of Defence. Others claimed it was a statement on Indigenous recognition and rights. All were guessing.

Not surprisingly, the appearance of the astonishing artwork also sparked a booming local tourism industry, with curious sightseers from around the globe keen to be among the first to catch a glimpse of the man-made wonder from the air.

Some pundits suggested American spelling and vernacular in a series of mysterious faxes sent to authorities soon after the figure's creation were a not-so-subtle clue as to its origins; perhaps it was connected to an American mining exploration company. Others rebutted this, saying it was a red herring to throw investigators off the track.

At the top of the list of suspects was First Nations artist and sculptor Bardius Goldberg, who prior to his death in 2002 denied any involvement. Another candidate was retired mechanic Robin Cooke, the mastermind behind the large-scale Mutonia Sculpture Park on the nearby Oodnadatta Track.

"I reckon it was Robin as he's probably the only one clever enough around here who could do it," says Lyall Oldfield, owner of the Marree Roadhouse, adding "he could have accessed that spot without anyone else knowing, but you'll never get him to admit it."

And he's right. Robin steadfastly denies any involvement.

Adventurer Dick Smith, founder of this magazine, was so desperate to get to the bottom of the outback mystery that he dedicated two years "solidly undertaking research" trying to solve it. "I hired a private detective, half a dozen experts, spoke to people on the ground, and despite all that have absolutely no knowledge of who did it," Dick confesses. "It's a classic outback whodunnit, it's Australia's secret of the century ... no one could have done it by themselves, it was definitely a group of people, including professional surveyors, but exactly who, we may never know." Dick is so determined to solve the mystery he is offering a \$5000 reward for information that leads to the unmasking of the perpetrators. "I really hope this will be solved before I die," he says.

Although controversially 'touched-up' by a couple of local business owners using a grader in 2016, the Marree Man has slowly started to fade back into the desert. But that hasn't stopped tour operators from offering scenic flights over the intriguing landmark. ►



The mystery of the century

Status: Officially unsolved, unofficially solved

A quiet backwater of the Lane Cove River is as idyllic a place as you'll find in suburban Sydney. But this aquatic haven was far from paradise when, on the unseasonably cool morning of 1 January 1963, while much of Australia was still nursing hangovers, two boys looking for golf balls at the nearby golf course stumbled upon a man lying on the ground just above the high tidemark.

At first, the boys thought the man – who was naked from the waist down but, bizarrely, covered with clothing, a carpet square and flattened boxes – was just sleeping off New Year's Eve celebrations. So, they wandered on. About an hour later they returned and were shocked to notice the man's face had turned purple. He was dead.

Shortly after the boys raised the alarm, police discovered a second body – that of a woman, only 15m away. Like the man, she was in a state of half-undress. Her body was covered with opened-out beer boxes. Apart from some minor abrasions, which she seemed to have sustained while crawling away from the riverbed, there was no obvious sign of violence.

The two bodies were promptly identified as those of respected CSIRO scientist Dr Gilbert Bogle and his lover Margaret Chandler who the night before had left a small party of fellow intellectuals in nearby Chatswood and snuck down to the secluded riverbank, which at the time was a known lover's rendezvous.

The scene of the mystery in the Lane Cove National Park in suburban Sydney and (below) Dr Gilbert Bogle and Mrs Margaret Chandler.



It was clear the lovers died of a rapidly acting poison, but autopsies offered little clue as to the killing agent. And who was the culprit? Perhaps the murderer had tried to cover up the crime with cardboard boxes?

Immediately, the finger was pointed at Geoffrey, Margaret's husband. However, it was soon revealed the couple had enjoyed an open relationship. Not only had Geoffrey encouraged the romantic tryst between Bogle and his wife, but he also sported a watertight alibi – at the time he was with his own mistress. Really!

Such sordid details scandalised conservative Sydney society, and



Coroner J.J. Loomes (second from right) and investigating police at the Lane Cove River site where the physicist, Dr Bogle, and his lover, Mrs Chandler, were found dead at dawn on New Year's Day, 1963.

the tabloid press had a field day. After all, this was a time when a couple couldn't even book into a motel unless they were married.

Just about everyone had a theory as to what killed the duo, ranging from LSD to overdosing on an exotic aphrodisiac. Conspiracy theories also began to spread. Bogle had apparently just accepted a job with a security firm in the United States and, given that the Cuban missile crisis had only unfolded three months before, the police explored the possibility that Bogle was a spy, or a target of espionage-related nerve gas.

Meanwhile Vivian Mahoney, the chief toxicologist, fastidiously pored over the evidence and consulted experts, including the FBI in the US and Scotland Yard in London. For more than a year, he carefully considered hundreds of obscure chemicals and poisons, including strychnine, arsenic, carbon monoxide, venomous spiders, even poison darts from the Amazon – you name it. But he came up blank. The unprecedented forensic investigation failed to identify cause of death, or the killer. Someone had committed the perfect double murder.

At the coronial inquest, the NSW police commissioner labelled it “the mystery of the century”. No one disagreed and the ‘crime’ was destined to remain unsolved, resurfacing every New Year's Day in newspapers across the nation.

However, the case was turned on its head in 2006 when filmmaker Peter Butt released compelling evidence of a silent assassin in his tell-all documentary *Who Killed Dr Bogle and Mrs Chandler?* Peter presented a convincing case that, just prior to the duo's fatal trip to lover's lane, hydrogen sulphide gas – caused by high levels of industrial waste and sewage – had bubbled up from the bed of the then heavily polluted river. The two lovers weren't murdered, after all. The river had killed them – with hydrogen sulphide.

“It's an ephemeral gas and in high concentrations can't be detected by humans. The moment they knew something was amiss they obviously started crawling away from it, but death would have been swift,” Peter says. “The cooler weather over the morning in question would have kept this invisible killer at ground level where they...[were] making love.”

When Peter divulged evidence to back up these claims to

This photo was part of the police appeal to help identify the piece of carpet that was draped over Dr Bogle's body. Police believed the carpet was an important clue and that the round mark was caused by a heavy object resting on it for some time.



Vivian, the toxicologist “burst in tears” before declaring to Peter, “You've got it!”

“He really was shocked it slipped through the system,” Peter says. “Despite reports of the presence of hydrogen sulphide in the river for several decades in the lead-up to the deaths, there had been absolutely no consideration from the police that it had been the river.

“It was simply a case of two people in the wrong place at the wrong time,” Peter concludes. “I'm now very confident we have the full picture of what happened.”

But with such a long gap between the deaths and this explanation, it seems unlikely there will ever be conclusive proof that this was the cause of their deaths.

Oh, and as to those cardboard boxes and clothes? Peter uncovered anecdotal evidence that a greyhound owner, known for his strict morals, was illegally training his dogs when he found the bodies and covered them up. Again, something for the coroner to consider should there be another inquest. ►

Our most puzzling UFO incident

Status: *Unsolved*

Most UFO reports feature fuzzy lights fleetingly spotted in the night sky in faraway places, and usually by only one or two eyewitnesses. That was not the case with the Westall Incident when, on 6 April 1966, not one but three UFOs were clearly seen in broad daylight hovering over two schools in the Melbourne suburb of Westall for at least 20 minutes.

What's more, there was no shortage of witnesses, including more than 200 students and several teachers. Talk about a ufologist's nirvana!

UFO investigator and researcher Shane L.J. Ryan has toiled away for 20 years trying to solve this mystery. He says he's corresponded with more than 100 of those witnesses, most of whom "are both adamant and mystified about what they saw in the sky".

The main UFO "was shaped like a bowl, inverted on a plate, with a slight hump on top, but with no visible joins – as if it had been poured from a mould", Shane says. "It flew fast, then slow; it ascended and descended; it turned at very acute angles; and it seemed to vanish and then re-appear in a different place in the sky."

"Multiple witnesses attest to seeing at least one of the UFOs either on, or hovering just above, the ground in a paddock near the school, or descending behind pine trees in the paddock as if landing."

While some people were overly quick to explain the incident as a standard weather balloon blown off-course (a theory that was later dismissed), reports of a significant and swift response from emergency services, along with the unexpected attendance of army and air force personnel in military uniform, spawned theories it was part of some secret military experiment.

Another ufologist Keith Basterfield believes it may have been a high-altitude test balloon launched from Mildura in north-west Victoria and blown off course. According to Keith, these balloons were used to monitor radiation levels after British nuclear tests at Maralinga.

"An equipment hire company was even brought in to assist the military response in the 'landing' paddock, and witnesses saw soldiers using Geiger counters and metal detectors there, and a cordon being set up," Shane adds.

Like any high-profile UFO report, there are, of course, claims of a government cover-up. According to Shane, "a very high-ranking public servant was tasked at the time by the Department of Supply to visit the site and compile a secret report for the government. He was then sworn to secrecy and told his career and reputation would be threatened if he spoke about what he saw."

After 56 years that report hasn't seen the light of day ... yet.

Whatever your take on UFOs, the Westall Incident is well-documented and remains firmly on the radar of investigators the world over.

Spook lights of the outback

Status: *Partially solved*

When the National Museum of Australia opened its daring new building in Canberra in 2001, one of the highlighted stories involved the feared Min Min lights.

Taking pride of place in the museum's Eternity gallery was the

absorbing account of "Granny Locke", who was mesmerised by a strange light "bouncing" near her home in outback Queensland.

"It was around 100 yards (91m) off the road and about 4ft (1.2m) off the ground. It looked like a car light with only one beam out the front and seemed to be floating; it made no noise, moving about all the time. Then it entered an area where there are no roads, just scrub, yet it was still there," Granny's voice crackled from the museum's audio-visual display.

Her eyewitness account is only one of a long list from residents, farmers and travellers who claim to have seen a baffling ball of light in the outback, especially in the flat country of western Queensland. Some say it's red, others describe it as green or, rarely blue, but mainly it's white.

Intriguingly, the spook lights are almost always sighted close to the surface and rarely, if ever, high up in the sky. And unlike standard UFO reports, there's rarely a suggestion these sightings are spacecraft with little green men peering out from portholes.

Instead, there are several scientific theories explaining this nocturnal phenomenon. They range from escaping swamp gas and luminescent fungi, to radioactive mineral deposits.

Given the distribution and sheer number of sightings, the most plausible explanation is the *fata morgana* – a mirage created by light bending around the curvature of the globe due to a temperature inversion, where a cold, dense layer of air next to the ground carries light far over the horizon to a distant observer without the usual dissipation and radiation.

A prominent proponent of this theory was the late Professor Jack Pettigrew, a neuroscientist at The University of Queensland. "The Min Min light occurs when light, from a natural or man-made source, is refracted to an observer who is tens, or even hundreds, of kilometres away, by an inverted mirage, or *fata morgana*," he told me in 2003, after he undertook a series of field experiments in Channel Country in outback Queensland.

These experiments were able to clearly demonstrate that a layer of cold air just above the ground between the distant light and the observer could indeed trap light. "This layer of cold air bends the light and keeps it close to the ground, so it can be seen over great distances," Jack told me. "The Min Min light was actually truck headlights sometimes up to 300km away."

Just don't try telling this to the good folk at Boulia, where the lure of the fabled light is one of the main reasons outback travellers visit their far-flung town.

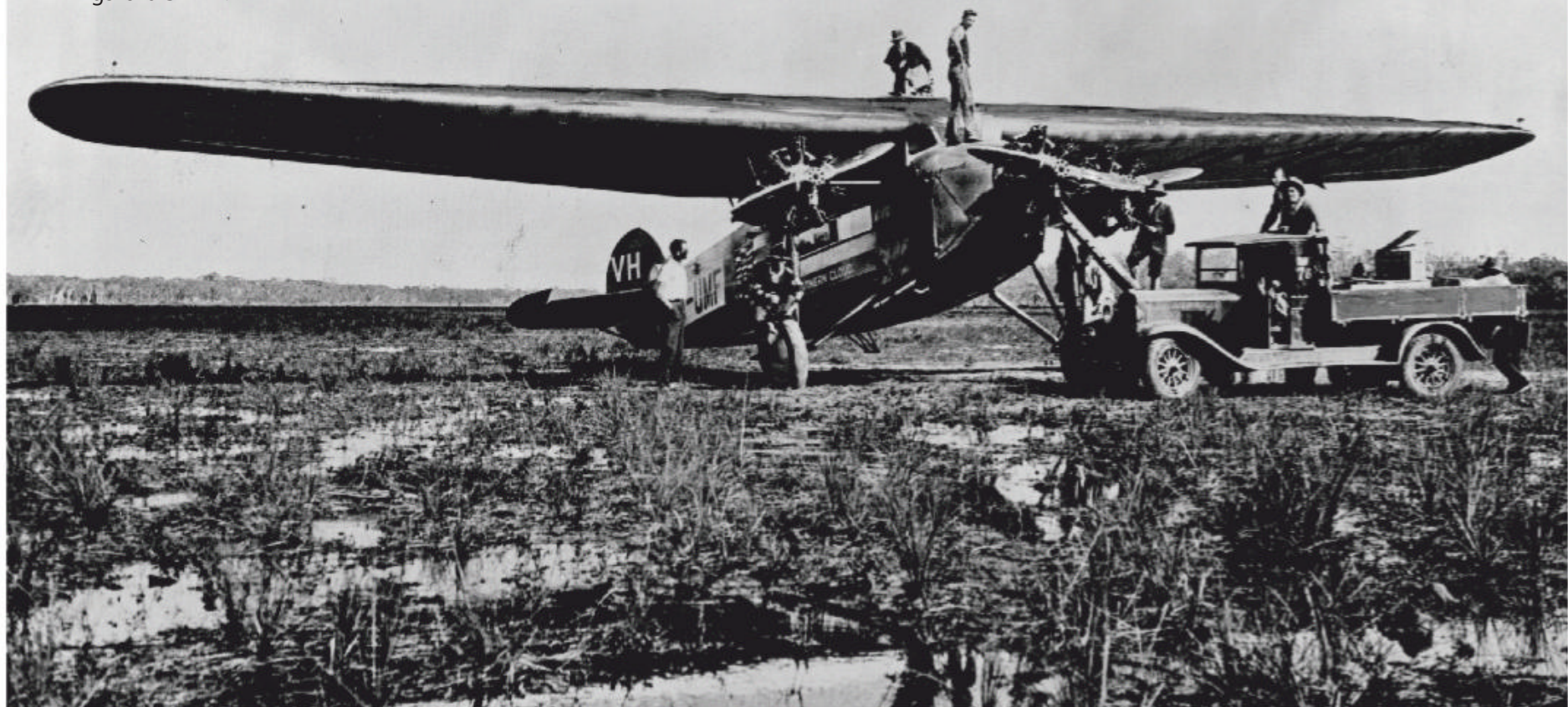
Missing in the clouds

Status: *Solved*

Travis "Shorty" Shortridge had no idea when he taxied down the tarmac at Sydney Airport bound for Melbourne on 21 March 1931 that he was about to fly into a storm. He was piloting an Avro X aircraft called *Southern Cloud*, operated by Australian National Airways – a company set-up by aviation pioneers Charles Ulm and Charles Kingsford Smith.

Sure, he knew he was going to fly in windy and rainy weather – but he was unaware that, just after he took off, the Bureau of Meteorology revised its forecast to near-cyclonic conditions for his flight path over the Australian Alps. The unexpected tempest blew his tiny plane off course, causing it to crash, killing all eight people on board. The whereabouts of the wreck would

The *Southern Cloud*, was operated by Australian National Airways – a company set-up by aviation pioneers Charles Ulm and Charles Kingsford Smith.



become one of Australia's longest running aviation mysteries, one that wouldn't be solved for more than 27 years – three long decades of anguish for the grieving families searching for closure.

When news that the flight failed to arrive in Melbourne was made public, aviation authorities were swamped with reports from eyewitnesses who claimed to have heard or seen an aircraft in difficulty across a 500km route from just south of Sydney all the way to Melbourne. But despite an extensive search, the wreck wasn't found.

A plane couldn't just disappear, could it?

The years passed and eventually the plight of those onboard the ill-fated flight was all but forgotten until, by chance, Tom Sonter, a carpenter working on the Snowy Mountains Hydro-Electric Scheme, discovered the crash site on 26 October 1958, almost three decades after the crash.

Tom was attempting a trek to Black Jack Mountain in the rugged upper valley of the Tooma River on the western side of Kosciuszko National Park, before beginning work at midday. But the going got tough so he turned around and, while navigating back to his worker's camp through an area of thick scrub aptly called "World's End", Tom literally stumbled upon the wreck, although he initially didn't realise its significance.

"I wasn't sure if it was a known wreck or not, so I removed the ID plate off the fuselage and took it to the police," Tom later told me. He admitted he'd hitherto never heard of the *Southern Cloud*.

The crash site was a grisly one. A small number of passengers' belongings were scattered a short distance away, resulting in speculation that some on board may have somehow survived the crash, only to perish a very short time later. Of course, the items could have just been moved by animals over time.

As is so often the case with disasters, several passengers cheated death by last-minute changes to their travel itineraries. Sydney businessman Stan Baker had booked on the fateful flight but, at the last minute, decided to travel by train instead.

In a bizarre epilogue to Stan's story, following the *Southern Cloud*'s disappearance, he reportedly developed a fear of flying, which tragically proved justified when in he died in a plane crash near Perth in 1950.

Then there's cricket great Sir Donald Bradman, who hitched a ride in the *Southern Cloud* from Adelaide to Goulburn "not long before the tragedy". In his 1950 book *Farewell to Cricket*, Bradman described the trip as a "bumpy journey".

While that flight may have been a bit turbulent for 'the Don', you can only imagine how terrifying the last few minutes must have been for those onboard the *Southern Cloud* as it plummeted into the rugged realms of the Snowy Mountains. ►

Sonter's reward

AFTER TOM SONTER discovered the wreck of the *Southern Cloud*, Cynthia Balderson, granddaughter of the pilot Travis "Shorty" Shortridge, told him he'd "changed her life".

"That was especially moving," Tom told me. "Providing closure for those grieving families was better than a financial reward could ever be. The family believed that the most likely scenario for the plane's disappearance was that it had overshot Melbourne and had crashed into the ocean somewhere. So to help deal with their loss, the family would often write messages in the sand at beaches, allowing the incoming tide to wash away the message and take it out to sea.

"Soon after the discovery of the wreck, Cynthia told me her mother took them back down to Bondi Beach where she wrote 'Daddy, now I know where you are'. That was especially moving."

Do Tassie tigers still roam the wilderness?

Status: Solved

If every report is to be believed, there's hardly a swamp in south-eastern Australia that's not teeming with bunyips, or a cave in the Great Dividing Range or south-west corner of Western Australia, that doesn't have one of those seemingly ubiquitous 'black panthers'. You know, the ones that witnesses claim are pumas, but the photos are almost always blurry.

The search for these so-called mystery animals falls squarely in the remit for cryptozoologists – pseudoscientists often clad in khaki and wielding bags of plaster of Paris and trail cameras, seeking evidence for these elusive and, in most cases, imaginary creatures.

The ultimate prize for every Australian cryptozoologist is evidence that the Tasmanian tiger (*Thylacinus cynocephalus*) is still lurking in a remote patch of the island state. But, hey, at least we know they did once exist. Indeed, the thylacine once roamed over much of mainland Australia. However, several factors, including the introduction of the dingo, led to its extinction in all areas except Tasmania about 2000 years ago.

Contrary to popular belief, the Tassie tiger wasn't prowling the Apple Isle in plague proportions before the arrival of Europeans. In fact, it's estimated there were fewer than 5000 thylacines in Tasmania at the time of European settlement. Excessive hunting, combined with factors such as habitat destruction and introduced disease, led to the species' rapid demise.

Although the last known Tassie tiger died in a Hobart Zoo in 1936, hundreds of tourists, farmers and 'tiger hunters', who have dedicated large chunks of their lives to find proof, claim to have captured tantalising glimpses of its stripes in the bush.

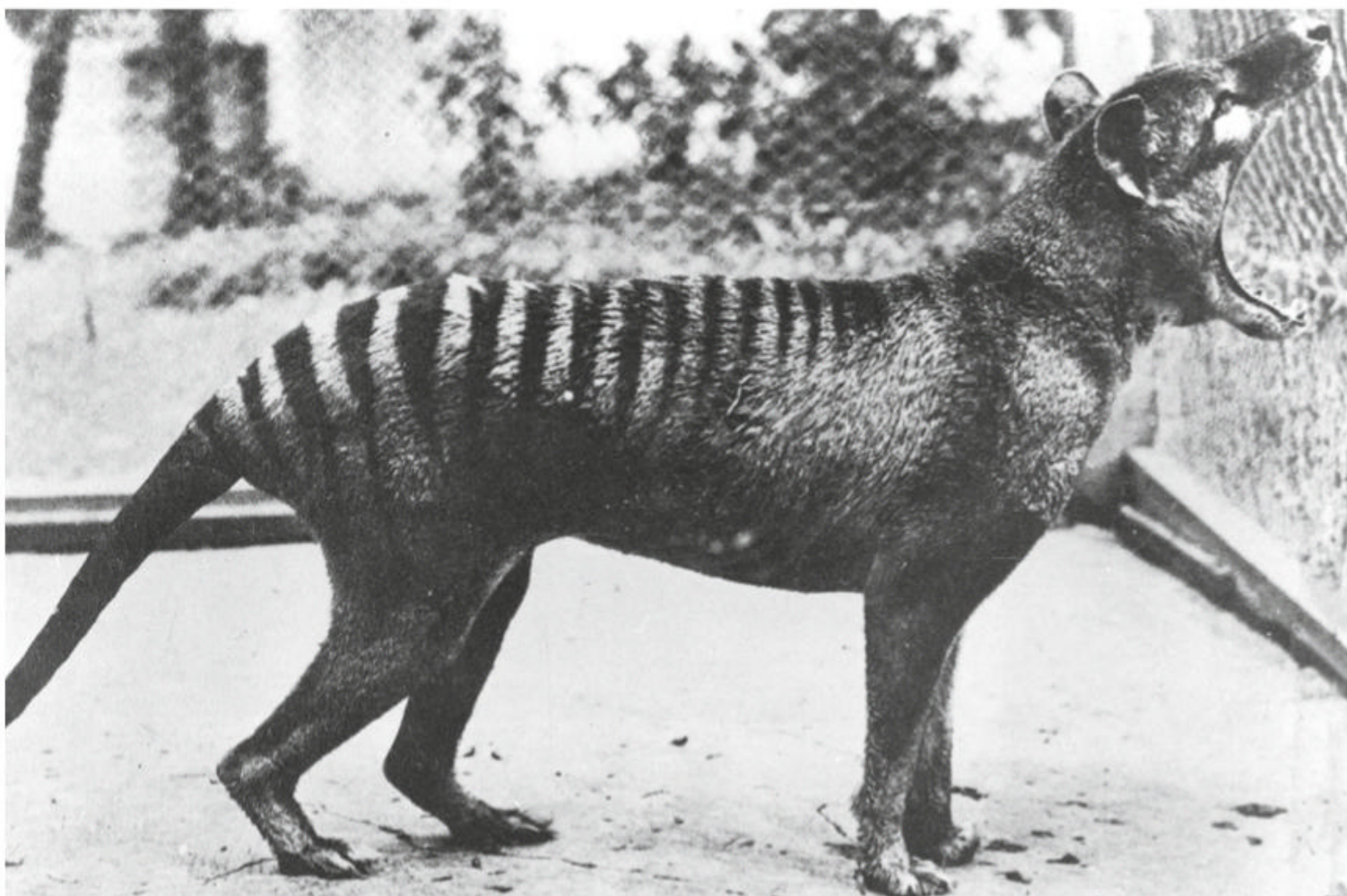
While the number of these reports has dropped significantly

Tassie tiger

THE WORLD OF cryptozoology is one of hazy photos, scams and pranks. Even this poor AG columnist was victim to one such cruel prank when, in 1998, a group of well-hydrated barflies from a pub in north-west Tasmania painted an old greyhound in stripes and let it loose in an area where I was searching for evidence of a Tassie tiger. It was dark, so yes, I was fooled, but only momentarily. The thylacine was the world's largest marsupial carnivore, but earned the moniker of "tiger" due to the distinctive black stripes on its back.

in recent decades, there is consensus among naturalists that the thylacine may have persisted in very small numbers after 1936, but is no longer. In fact, according to recent analysis of 1237 observations and claimed sightings of the animal since 1910 undertaken by University of Tasmania Professor Barry Brook and published in the June 2023 issue of the journal *Science of the Total Environment*, the thylacine may have hung on into the late 1980s and possibly even longer (see *Is the truth still out there?*, AG 178).

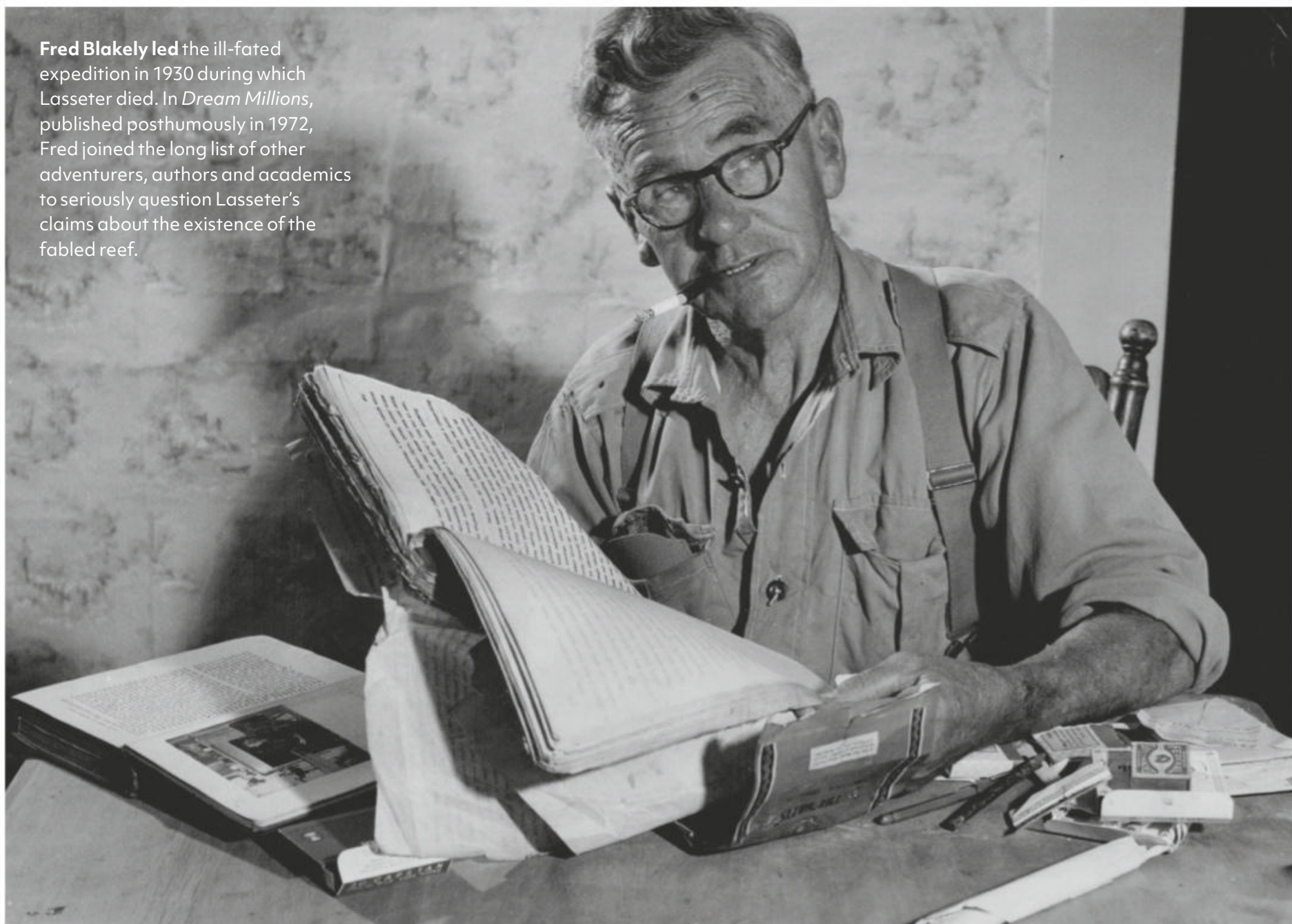
One scientist who believes we shouldn't completely rule out seeing a live Tassie tiger again is Professor Andrew Pask. He's part of a University of Melbourne research team attempting to resurrect the extinct thylacine using DNA from preserved specimens (see *A place of last resort*, AG 181). "I've always found it perplexing when the thylacine is pictured in montages alongside bigfoot and the Loch Ness monster," he says. "Too often cryptozoology is associated with mythical creatures and not real ones."



This thylacine was photographed outdoors at the Hobart Zoo, Tasmania, in 1933. The animal has its mouth open in a yawn, showing the greater than 90-degree gape of its jaw.

PHOTO: COURTESY OF THE QUEEN VICTORIA MUSEUM AND ART GALLERY

Fred Blakely led the ill-fated expedition in 1930 during which Lasseter died. In *Dream Millions*, published posthumously in 1972, Fred joined the long list of other adventurers, authors and academics to seriously question Lasseter's claims about the existence of the fabled reef.



Australia's El Dorado

Status: *Likely solved*

No exposé of Australian mysteries is complete without shining the spotlight on Lasseter's Reef – that dazzling quartz reef laden with specks of gold, supposedly hidden somewhere west of the MacDonnell Ranges in Central Australia.

A long list of books, films and column inches, including in this journal, have attempted to unravel the truth about the fabled reef. In fact, it's almost become a rite of passage for anyone travelling through the red centre and beyond to search for the mystical reef.

So, is the reef that Harold Lasseter claimed to be “seven miles [11.3km] long, four to seven feet [1.2m to 2m] high, and 12 feet [3.7m] wide”, really out there, just waiting to be (re) discovered?

In one corner are the true believers, who were loyally led by Harold's son Robert “Bob” Lasseter until his death in March 2024. Bob was just five years old when his dad left on the ill-fated 1930 expedition to find the reef, which he claimed to have first spotted 33 years earlier during a prospecting expedition.

Unfortunately, Harold was never seen alive again, taking the location of his supposed reef to his bush grave. In a bid to authenticate his father's bold claims, Bob dedicated much of his adult life to combing the deserts of Central Australia in more than 30 separate excursions, often through inhospitable country.

“My father wouldn't have taken the risks he did if there was nothing in it ... it was right for me to prove that my father was correct,” he said after his final unsuccessful expedition.

Meanwhile, in the other corner are the hardened sceptics – a



The headstone on Lasseter's grave in the Petermann Ranges near the NT/ WA border, as featured in Mike Willesee's 1979 TV special *The Legend of Lasseter*.

long line of esteemed historians and researchers who seriously question Lasseter's character, citing inconsistencies and blatant untruths in his stories.

Dr Steve Hill, chief scientist at Geoscience Australia, sits in this camp. But he doesn't think we should give up all hope.

“Although there are no substantiated records of major gold-bearing vein systems or known highly prospective host rocks for this type of gold system in the broad region to the south-west of Alice Springs, it doesn't mean that the search for mineral wealth in the region is hopeless,” Steve says. “The region still holds great intrigue and mystery, even to the most modern and sophisticated of mineral explorers. Over time, it will be fascinating to see what may be revealed.”

Whether or not that's Lasseter's mythical reef, only time will tell.

RESCUING THE MATRIARCHS OF PORONGURUP

STORY BY **CASS LYNCH & LEANDA MASON**
PHOTOGRAPHY BY **DUNCAN WRIGHT**

This extraordinarily
successful wildlife rescue
story will change your
view of spiders.



In a lifesaving rescue, this black *Prothermacha* sp. trapdoor, one of the 'proshies' as they're affectionately known to the rescuers, is transferred to a new burrow in a safer place.

RISING ABOVE A tall karri eucalypt forest, the granite domes of Western Australia's Porongurup Range National Park sit ancient and heavy with time. They're part of a landscape left over from 500 million years ago, when two-thirds of the world's continents were huddled together and covered in lush rainforests on the supercontinent called Gondwana. The breakup of Gondwana had a widespread drying effect on most of the Australian landscape, but not here. The high elevation of the Porongurup peaks attracts a steady supply of rainfall, which is why a karri forest prevails here, about 500km east of where it otherwise would.

Beneath the trees, in moist banks of karri loam, little holes the size of five and 10 cent pieces dot the path that winds around the boulders and trees to the peaks. Each is a circular turret decorated with karri leaves, flower petals, sticks and grass to blend in with the forest floor. These are the homes of the Porongurup trapdoor (*Cataxia* sp.), a shy brown spider that grows to about 4cm long, with a dark body and light brown legs. The Porongurup trapdoors are charming architects in this wet forest landscape, building silk sheaths into the soft earth about 40cm deep and capping each with an open turret decorated to match the surrounding leaf litter.

There's another kind of burrow here – a simple hole in the ground with some tell-tale signs of web near the opening. This is used by *Proshermacha* trapdoor spiders, affectionately nicknamed “proshies”, which are larger black arachnids that live alongside the *Cataxia*. Both these burrow-dwelling spiders are mygalomorphs: members of an ancient lineage that have retained biological similarities to the ancestors of spiders that first appear in the fossil record. They are the cousins of funnel-webs and tarantulas and, like them, are time travellers from Gondwana, surviving in moist, humid pockets in a world that's changed around them.

TRAPDOOR SPIDERS ARE well known for their burrows with skilfully camouflaged doors. These entrances are attached by a silken hinge to an underground tunnel that can reach as deep as a metre for some species. Trapdoors are sit-and-wait, opportunistic predators, so these burrows are essential for them to feed, avoid being eaten themselves, and for escaping other threats such as fire. Trapdoors have remained largely unchanged since first evolving about 400 million years ago. Unlike their more modern cousins, including the redback and the wolf spider, they've retained large downward facing fangs, two pairs of book lungs, and a thick hairy body well suited to burrowing and digging rather than weaving webs or running through the undergrowth.

The *Cataxia* and *Proshermacha* genera of trapdoor spiders, unlike many of their close kin, do not have lids to their burrows. The elevation and cool climate of the Porongurups may mean they don't need a lid to maintain their burrow's humidity. The

Rescue volunteers Karen, Bo, Judy and Lucia mark trapdoor spider burrows along a fire break used to access the relocation site.

This hand-drawn grid shows where the trapdoor spiders were relocated to in January, and where they had settled by July.

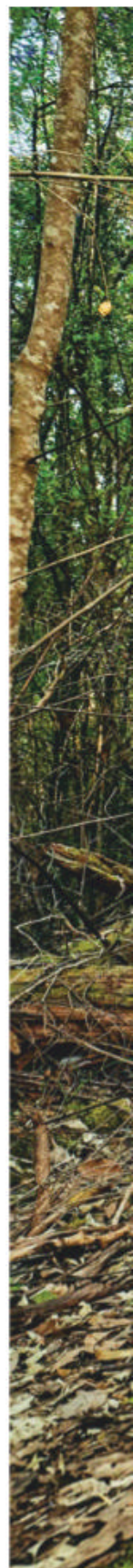


Trapdoor spiders have remained largely unchanged since first evolving about 400 million years ago.

Cataxia were first described in 1985 by pioneering spider biologist Professor Barbara York Main (see page 96).

Due to Barbara's ground-breaking work, trapdoor spiders came to be known as short-range endemics (SREs) – species with extremely limited geographic ranges, often confined to small, isolated, and/or highly specialised habitats. These species have often evolved fascinating life histories, adapting their biology, ecology and physiology to survive in very specific environments. As the quintessential SREs, trapdoor spiders are very important to conservation efforts as surrogates for other species with similar traits because individuals are easy to monitor long-term.

Trapdoor spiders will not move locations unless disturbed because they rely heavily on their burrows for survival. This makes them vulnerable, but also easy to keep track of because individuals will also not take over other burrows. Thanks to Barbara, we also know that individual trapdoor spider females can live for 43 years! Trapdoor spiders lay claim to being the oldest recorded living spiders in the world that we know of.





NEARLY 2023, a sign went up in the national park announcing construction to improve its trails, and we saw on the map that a new bitumen path would run right through an important trapdoor colony. We contacted the local national parks authority, WA's Department of Biodiversity, Conservation and Attractions (DBCA), which explained the path upgrade was to improve accessibility to the toilets and to 'Tree-in-a-rock', a giant karri tree growing out of a granite boulder. The original path was a dirt hiking trail, and the two species of trapdoor spider, the brown *Cataxia* and the black *Proshermacha*, both built burrows right up to and onto it. The path was rugged and dotted all along with rocks and tree roots, which made the toilets and Tree-in-a-rock tourist attraction largely inaccessible to wheelchairs and prams. The proposal was to seal 150m of the hiking trail with a bitumen walkway, connecting the carpark to the toilets and to Tree-in-a-rock. Cass did a sketchbook count of the spiders along the path of construction and documented 180 burrows of the two species that could be confidently identified.

The bitumen path meant that some burrows would be sealed indefinitely, starving the spiders underneath. DBCA was aware of the spiders, and that the *Cataxia* in particular were only known to live in the Porongurup Range, itself only 26sq.km. Though restricted, the spiders didn't qualify for protection under existing environmental laws: they were classed as 'locally abundant', because colonies of this species exist at two other locations in the Porongurup Range, and the loss of some of the *Cataxia* trapdoors was not considered a danger to the survival of the species as a whole. DBCA had inquired with environmental consultants who'd confirmed this, and the construction was greenlit.

Although under-researched, the shy brown *Cataxia* trapdoors, like other trapdoor spiders, are likely to have a lifespan measured in decades. Some of the bigger burrows that dotted the path could house a spider more than 20 years old. In the Noongar language, trapdoor spiders are known as walbungkara, and our Elders share that plants and animals are our relatives and we must care for them like they are family. ►

Cataxia burrows are clustered in generational groups where a matriarch may be surrounded by multiple generations of offspring of varying ages. Our concern was that the scientific approach of viewing the *Cataxia* trapdoors as a species block erased the significance of the lives of the spiders who'd lived there along the path to Tree-in-a-rock for decades.

Mentored by the late Barbara, Leanda is a practising trapdoor spider conservation ecologist and has expertise in safely digging up and moving trapdoors. We connected with the Friends of Porongurup Range, a group of locals, and others who monitor the park, advocating for its health and wellbeing. They got behind us and supported us to mount an effort to rescue any spiders we could before construction began. We both live in Perth, four hours from the Porongurups, and Loxley Fedec, an invertebrates expert who has a trapdoor species named after her, was our local liaison and biggest cheerleader. Through conversations with DBCA, we were given permission to run a pilot program to relocate five spiders living in the proposed construction zone.

TO PREPARE FOR relocation of the spiders, we needed to use the right tools and techniques to safely remove them from their burrows without causing harm. This required careful observation of their microhabitats, particularly the leaf litter depth and soil preferences for burrow construction. All SREs are typically specialist species, so we needed to document where they were found as well as where they were not, to identify any limitations. Our first relocation was an important test, and we successfully moved Kenni (which means 'one' in Noongar), our first *Cataxia* spider.

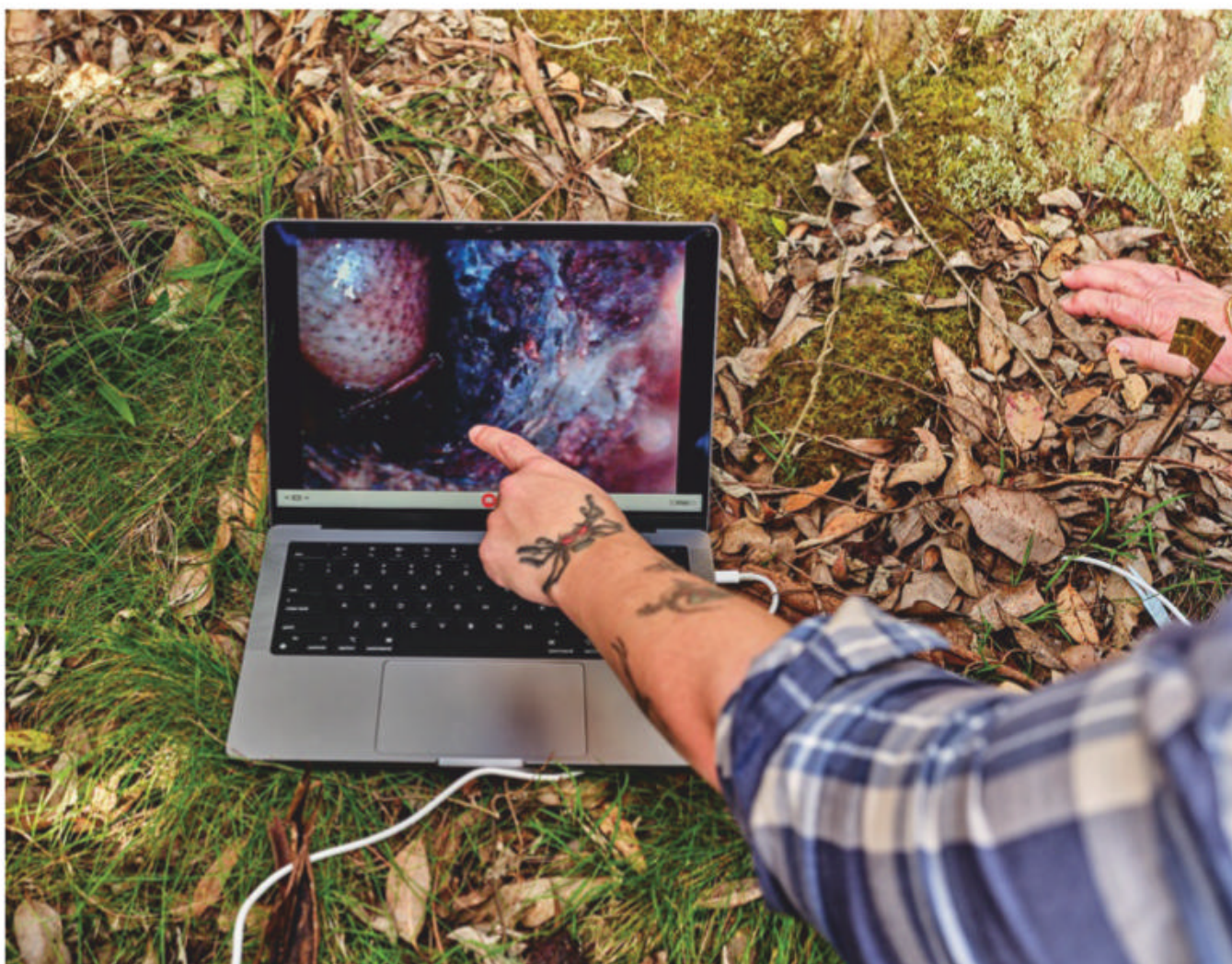
The next challenge was determining an appropriate translocation site. It was crucial to find a new location with similar microhabitats, to ensure the specialist spiders could thrive once

again. After scouting the area, we found the ideal location about 100m off the path and out of harm's way. The pilot program included a translocation of five spiders from the proposed bitumen path site, a process that required meticulous planning, including marking burrows, digging carefully around them, and ensuring each spider was safely transported to the relocation site. We also detached and relocated the turret entrances from the spiders' previous burrows in the hope of providing a sense of familiarity to their new homes. Our initial successes in this set the stage for a more extensive rescue effort as construction deadlines approached.

WE'D BEEN MONITORING the Tree-in-a-rock colony for about six months and had successfully moved five spiders. By January 2024, the weather had become too warm to do spider research, as many trapdoor spiders aestivate – go into summer hibernation – to wait out the worst of the heat. The start of construction had been pushed back a few times and we were hoping it wouldn't commence until at least May 2024, so we could resume monitoring and moving spiders in April, when the weather cooled down again.

But we wouldn't be that lucky and were notified on 18 January that construction was commencing on 29 January. We felt very far away, being in Perth, but sprang into action. Assisted by the incredible coordination efforts of local legend Loxley, a week later on 25 January, we arrived at Tree-in-a-rock picnic area and were met by 22 volunteers from various conservation groups around the Great Southern region.

A summer rescue presented us with multiple challenges. In January, the earth is hard, even in a wet karri forest, and a spider that takes only 30 minutes to dig up in the cool seasons can take more than two hours to safely excavate in the heat. ►



An endoscope camera placed down a burrow sends images to a computer (left) allowing rescuers to see if a trapdoor spider is present and what condition it's in.

The grand burrow palisade (right) of a *Cataxia*: each turret is unique and forms the front door to the spider's subterranean home, using surrounding leaf litter and silk for construction.





THE SPIDER LADY

Barbara York Main was a pioneer of Australian arachnology.

BORN IN 1929 on a small farm in Tammin, Western Australia, Barbara York Main grew up immersed in the unique flora and fauna of the Wheatbelt. Her love for nature flourished early. Due to the farm's remoteness, she studied via correspondence before earning a scholarship to Northam High School. Inspired by her mother, one of the first female students at The University of Western Australia (UWA), Barbara pursued higher education, completing her Honours in Zoology in 1950, defying societal expectations at the time.

Barbara became a trailblazer in arachnology, renowned for her research on trapdoor spiders. Her PhD, completed in 1956, broke new ground by integrating ecology with traditional fields such as creative writing, natural history and biogeography. As the first woman to earn a Zoology PhD from UWA, Barbara made significant contributions to understanding the evolutionary ecology of spiders.

Beyond academia, she was a gifted writer. Her books, *Between Wodjil and Tor* (1967) and *Twice Trodden Ground* (1971), blend scientific insight with a profound connection to the land, making her an early voice for conservation.

Honoured with numerous awards, including the OAM in 2011, Barbara's quiet perseverance in the protection for trapdoor species continues to inspire scientists and conservationists.

This meant we would likely rescue fewer spiders in summer than in winter. The extra effort required to dig them up also increased the risk of harming them during removal. What concerned us most was that the firmer ground meant the spiders had to work harder to dig new burrows once they were relocated.

It's a big risk for a trapdoor spider to be outside of its burrow, because trapdoor spiders evolved during the time of Gondwana, when the humidity was much higher than it is today. The inside of a burrow retains high humidity and stable temperatures much like a cave does, and living in burrows means these spiders have prevailed even though the climate has largely dried out. However, if they leave their burrow they are vulnerable to desiccation, where they dry out through their lungs and perish. We needed to dig the spiders up and get them back underground as quickly as possible to keep them from losing too much water.

WE HAD FOUR days – Thursday, Friday, Saturday and Sunday – to carefully dig up as many trapdoor spiders as we could. The first step in bringing up a spider is the most time-consuming one. It involves digging an access trench straight down alongside the burrow so you can approach the spider from the side and gently pry it out. They can retreat quite deep when they sense you digging so that access trench may need to be 60cm deep and 30cm wide. Only Leanda had the expertise to complete the second step, which was to extract each spider from its opened burrow. The third step was transporting the spiders 100m away to the relocation zone.

Between us all we made a plan and devised a rescue assembly line. During the four days, the volunteers dug 40 trenches alongside the bigger burrows, a huge effort involving breaking up the hard dirt with pickaxes and navigating around buried rocks. Once a trench was dug, Leanda stretched out on the ground, long forceps and feather forceps in hand, and gently and painstakingly removed each spider. We were very careful when we came across gravid (pregnant) spiders and spiderlings, which are particularly vulnerable when disturbed in any way.

Each spider was then transferred in a container to the relocation zone, where Cass was set up with trowels and flags. A suitable patch was allocated, and a shallow burrow was dug with a narrow trowel. The spider was gently decanted inside, then covered with soil, leaves and a plastic dome cover. Both species are likely nocturnal and this protected them until they could start building themselves a new burrow at nightfall. The spiders were recorded in a grid book and identified with a flag.

The field work became a fast-paced, high-stakes effort to save as many spiders as possible before the construction crews arrived. The few times we managed to stop for breath and look around we saw the incredible volunteers hard at work digging trenches, handing out water, and crouching over burrows with umbrellas to make shade for the spiders coming out. The continuous stream of trapdoors being brought to the relocation site was very rewarding. After being trained and supervised by Leanda, a few volunteers had even brought up spiders themselves, increasing the number saved.

By Sunday 28 January 2024, we'd moved 40 spiders out of the path of construction and into the relocation zone. This was ►



Leanda uses specialised tools to locate and carefully extract a spider from her burrow.

Tools of the trade:
A feisty 'proshie' finds herself scooped up to be safely transferred to the relocation zone.



only possible with the help of Loxley and the volunteers, as we might have only rescued about 10 spiders in the same amount of time by ourselves. We'd done all we could, construction was due to begin the next day on Monday 29 January. We had to thank our volunteers and head back to Perth.

CONSTRUCTION TOOK ABOUT six months and the spiders were on our minds the whole time. The rescue was more than just about saving spiders – it was a test for our capacity to fulfill our responsibility to care for Country. We both consider the trapdoor spider to be our borangka, or totem, a Noongar concept where you're expected to be an expert on a particular plant, animal or element, and you're responsible for directing the rest of the community on how to treat your totem to ensure its ongoing survival.

The place-name 'Porongurup' translates as Borangk-up, meaning 'place of totems', as well as Boorong-up, 'place of rain'. It is a place for honouring totems, so when the sign went up announcing the planned construction, it felt like a challenge being placed before us: will you act? We had answered the call and done what we could, and now all we could do was wait.



The shy architect of the Porongurup Range, the *Cataxia* trapdoor spider builds little towers out of eucalypt karri leaves at the entrance to her burrow.

Early signs point to every single spider having survived the move.

IN JULY 2024, we finally found ourselves once again driving the long, beautiful road up the mountainside, beneath the towering karri trees to see the results.

The picnic area was transformed: new paths, new gazebos, new seating and new toilets. We walked along the new bitumen path, noticing that the meandering lines of spider burrows along its edge had been replaced with mulch. We walked into the forest to the relocation zone and saw our colourful flags rising from the leaf litter. As we looked down into the relocation zone we saw burrows everywhere. We spent a few hours surveying, checking each flag, and marvelled. Early signs point to every single spider having survived the move. We gave the relocated colony its own name, the Kara Koorl Colony, which is Noongar for 'spiders that have moved'.

Walking out, we checked along the mulched edges of the new bitumen path again, looking for any signs of life. And there it was: a *Cataxia* burrow poking up among the wood chips. It was a large burrow, 2cm in diameter and 2cm tall. Instead of the turret being made of karri leaves, sticks, and flower petals, it was a little fortress made of spiky wood chips.

Our only guess is that a large female we missed during the rescue had dug deep enough so that she'd managed to escape the shovels, diggers and compactors. When all the noise and vibrations stopped she must have popped up and built herself a turret from what was around her.

We'll keep an eye on her to see if a woodchip burrow can serve its purpose, but her survival offers a lot of hope for the resilience of these tenacious, deep-time matriarchs that live in the undergrowth.

SEEING THE LOCAL community come together to save spiders was not only incredibly touching, it was crucial to the success we had. Early on in the project we chose collaboration over protest, largely because there were no specific laws to protect the spiders, and the bitumen path would be laid long before we got anywhere with changing that. It was a bitter pill to swallow, as we felt a strong sense of injustice that so many spiders were going to perish for the convenience of humans.

During the course of the project, however, we found that with collaboration came an infectious, positive energy that ultimately attracted the people who showed up in droves to help. That positive energy also sustained us through the nearly year-long survey and research effort.

We couldn't have known it at the time, but having 22 other people to share in our sadness and happiness helped us carry the grief for the spiders that perished in the construction process. In the course of being tested in our dedication to our totem, it seems that Country was also teaching us the lesson that it's not individuals who successfully protect Country, it's communities. ■



Cass Lynch (left) and Leanda Mason spent nearly a year researching ways to help the spiders.

MEET THE RESCUE LEADERS

Dr Cass Lynch

I grew up regularly visiting Porongurup Range National Park, trekking with my family to Nancy Peak and Devil's Slide and having twilight barbecue dinners at the Tree-in-a-rock picnic area. I never noticed the trapdoor spiders as a kid, which is incredible to think of now because they build their burrows so close to the path. Years later as a PhD student I participated in a bioblitz organised by a local conservation group where we were taken into the Porongurups at night to spot nocturnal spiders while they were active. That experience introduced me to the trapdoor spiders, in this case the black Proshermachas, which I witnessed sitting in the opening of their burrows, waiting to spring on something tasty if it crawled by. I was at the beginning of my PhD, where I was researching Noongar cultural stories that referenced climate changes such as cold times and sea-level rise. I'm a Koreng Wudjari Noongar woman, part of the Wirlomin family, and I wanted to understand the impacts of climate change on Country.

I came to appreciate just how interesting the Porongurups were in terms of climate memory, a place not only of ancient trapdoor spiders but also other Gondwanan species such as giant earthworms and unusual land snails. I'm now a postdoctoral research fellow working in Noongar language revitalisation, but the Porongurup Range is forever an ecological, deep-time treasure box that inspires and inspires.

Dr Leanda Mason

Professor Barbara York Main, one of Australia's leading spider experts, sparked my fascination with trapdoors during my impressionable late teen years during my undergraduate studies. She subsequently became a mentor and friend. Barbara's poetic passion for these remarkable yet often overlooked creatures was contagiously inspiring and seamlessly translated across our 60-year age difference. She was very generous and patient in sharing her knowledge with me. Later, and during my own personal identity journey with my Minang Noongar heritage, my research practices came to be informed by Noongar ways of doing, being and knowing. Our 'Caring as Country' approach emphasises relationality, interconnectedness, sustainability, reciprocity, and the deep wisdom of protecting all living things.

Through my current research focusing on Equity, Diversity, Justice and Inclusion (EDJI) in ecology, I'm committed to giving a voice to the voiceless; advocating for species that are frequently forgotten in conservation efforts due to being "non-charismatic", such as trapdoor spiders. By embracing an Indigenous-led framework grounded in equity and inclusion, I aim to bring attention to the ecological and cultural significance of these tenacious invertebrates. Barbara's legacy lives on in my work, fostering an approach to ecology that respects both the land and its diverse, widely unnoticed and unappreciated inhabitants.



Original resident of the Tunttable Falls Community in northern NSW, Megan James, harvests mandarins from the 'wild' orchard.



FINDING UTOPIA

STORY BY **WENDY CHAMPAGNE**
PHOTOGRAPHY BY **LIZ HAM**

Meet the Australians who have found
joy and purpose in the shared spaces
of intentional communities.

IT'S DECEMBER 2023 and Dan Prochazka and his partner, Nicola Beatrix, are awake early. They emerge from their tiny house near Castlemaine in west central Victoria into a frosty summer morning. Toddler daughter in tow, they walk 20 steps to a hangar-like open garage with tractors and building supplies at one end and a camp kitchen at the other. A kangaroo skin is slung over the back of a chair as a warmer. “Roadkill ... found about 300m from here yesterday morning,” Dan says, nodding to a pot of dark kangaroo stew bubbling away on the gas stove. Dan and Nicola are on a pathway to sustainable living. But turning the dream into reality takes lateral thinking and a lot of hard work.

Looking west from the temporary kitchen, past a pegged-out barren plot destined to be a veggie garden the size of a footy field, is the heart of Dan and Nicola’s social experiment – an “intentional community” known as Open Field Co-Living Homestead. For 170 years, so-called intentional communities have created a parallel social and cultural landscape in Australia. They attract people who believe the world would be a better place, both socially and environmentally, if we humans lived in closer communities. Yet, despite the purity of the ideal, communal living is generally perceived as an anomaly; a weird social experiment that’s the domain of hippies or religious radicals. It can be all of that, but it can also be an expression of our higher ideals – utopia.

The first known intentional community in Australia was Herrnhut commune in western Victoria, founded in 1852 by a quasi-religious group of German Protestant immigrants led by Johann Friedrich Krummnow. The Germans established a school, businesses and a village, but with heightened visibility came derision and fear. Angry at the influx of migrants and indigenous groups who were drawn to Herrnhut, the locals undertook a relentless policy of harassment and legal warfare until, in 1889, they succeeded in shutting down the utopian



A chilly morning start (above) for Dan Prochazka, Nicola Beatrix and their daughter, Jo, at the Open Field Co-Living Homestead near Castlemaine in Victoria. The move from two of these Tiny Homes (left) on the property to the massive Open Field Homestead will mean more than a change of living conditions for the young family; it will mark the start of a radical social experiment.



Despite the purity of the ideal, communal living is generally perceived as an anomaly.

commune. We naturally fear what we don't understand, yet the pull to live communally can be as straightforward as being happier living with other people. Like many young people, Nicola moved through a series of share houses enduring bad landlords, no rights, high rents and insecure tenancy. But, instead of feeling defeated by the unfairness of it all, she resolved to find a way to make it more equitable.

She met Dan at a sustainability conference. Dan, an architecture graduate, and Nicola, a children's therapist, bonded over their dedication to the environment. Their plans for the Open Field Co-Living Homestead took shape as their love affair blossomed. For them, sustainability is not restricted to solar panels and hempcrete, but has to exist on a fundamentally human level – as a model for co-habiting, sharing ideas and workloads such as child-rearing, cooking and gardening.

The couple's unfinished hempcrete bungalow looks like a Viking longhouse. Dan has designed each element of the

homestead in painstaking detail to conserve energy, minimise noise and have the feel of a home. It will have eight bedrooms, a massive common room and central kitchen, plus a mudroom and a guest room with bathrooms at each end. The deeper experiment – how to foster community in a shared house – has also begun ... at least in theory.

AUSTRALIA HAS A continuous, largely untold record of utopian experiments, stretching from worker cooperatives and artist colonies in the 19th century, to the hippie communes of late 20th century, to today. The commune timeline tells stories of hopeful individuals – some inspired, some deluded – all joining together and striving toward something better than the status quo.

Dr William 'Bill' Metcalf, from The University of Queensland (UQ), is Australia's foremost expert on intentional communities. He does not buy into the notion of utopia as a noun – a thing that exists – but says there is a descriptive "utopian ideal" of improving and moving towards perfection in intentional communities. The word 'utopia' is a Greek pun that means both "no place" (ou-topos) – a place that doesn't exist – and "good place" (eu-topos). English philosopher Thomas More coined the word and used it for the title of his 1516 book about an island where the citizens lived in harmony adhering to the highest principles.

Bill's interest in intentional communities grew out of his experience growing up in rural Scotland where farmers regularly joined together on working bees. When he moved to Australia, he and his girlfriend gravitated to share houses, mostly for the cheap rent. He was doing his master's degree in sociology at UQ in 1973 when the Aquarius Festival (see AG 172) was held across the border in Nimbin, northern New South Wales. That 10-day "survival" festival made a big impression on him. "The openness, the sexual freedom and the sense of camaraderie were really strong," he explains. Since then, he's visited and re-visited scores of communities around Australia for his research. Bill is an erudite, pragmatic academic who's been living the 'community' approach his entire adult life and says it would be hard to live any other way.

THE TUNTABLE VALLEY in northern NSW has steep hillsides clothed in ancient Gondwanan rainforest, some of the last remnants of intact subtropical rainforest left on the planet. This valley is also home to the Tuntable Falls Coordination Cooperative, an intentional community established in the 1970s.

Megan James is one of its founding members. The 76-year-old emerges from her caravan on a Sunday morning at dawn, ready to get the digger in gear and reclaim some of the land she lost during a landslip in the 2022 floods. "We're affected by all the horrendous overregulation, climate change, wars and disaster and all the rest of it. But to have that sense of community is immeasurably valuable and totally worth working for," she says. "Once you're part of a community, you're always part of that community. You come home, and it's always home and I think that's fantastically empowering for people in our culture."

Megan arrived at Tuntable 50 years ago in a Kombi van with a baby in her arms and big dreams of creating a new life ►

for herself with like-minded individuals. These dreams were interrupted by a once-in-a-lifetime flood in 1974, that destroyed her car home – but not her pioneer spirit.

Tunable was born out of the aspirations of the 1973 Aquarius Festival that Bill Metcalf also attended. After the festival, 40 pioneers each paid \$200 for a share in the Tuntable Falls Coordination Cooperative, 200 acres (81ha) of pristine rainforest and depleted dairy pastureland at the dead end of a steep mountain valley. They were hoping to create a new society, and Tuntable seemed like perfect utopian material.

These were the movers and shakers of the intentional community movement; a bunch of urban hippies who survived by speed-learning life skills, pooling physical and intellectual resources, petitioning to change state planning laws and establish new codes for housing sustainability. It resulted in 168 intentional communities flourishing today in NSW's Northern Rivers region.

For 50 years, government resistance, internal fighting, drugs and drug raids, deaths, births and natural disasters haven't managed to break Tuntable. It's the ultimate survivor, a wild garden of humans and plants re-seeding and regenerating. "We have the power of anarchy here – a very interesting dynamic to live with," Megan says.

Hippie rejection of authority and structure shaped the commune but also tested the limits of consensus-based decisions. In the early days the community had stated rules, such as "No heroin", which was scrapped in the 2000s and

replaced with "No chemical drugs". But today, even that rule has been scrapped. "It's unenforceable," Megan says. "In the early years, we also had a 'grievance person' but that's a thankless role in a community of over 400, so that role is moribund. The only rule that has endured is not using power tools on a Sunday."

While it lacks foundational ideology, Tuntable has an asset that has aided its long life. In the early days, a group of young mothers, including Megan, built a pre-school and, not long afterwards, the Tuntable Primary School, which today services all families in the area, not just those in the commune. Kids who've gone through that school or grown up as wildlings in this pristine rainforest valley experience some magic that, years down the line, brings them back to Tuntable to raise their own children here.

Communes sprouted like magic mushrooms across the Northern Rivers region in the 1970s. Those communes with strong value systems, such as Bodhi Farm, Dharmananda and Siddha House Farm, survive today. The clarity of those ancient religious precepts of "do no harm" and "maintain equilibrium" has helped participants manage the personal issues that plague community living.

"We were hippies and we believed in the perfectibility of humankind," says John Seed, one of the founding members of Bodhi Farm, established down the valley from Tuntable in 1976.



Situated within the community at the very end of a rainforest valley, Tuntable Falls Primary School has survived major floods and bushfires. Pupils play beneath a roof with the word SCHOOL painted for the benefit of the emergency services helicopter.



Chenrezig's success as an intentional community may be due to its ability to change and grow in vision. For Ailsa Cameron (left), work in the community provides consistent opportunities for growth, both internally and externally.

IN 1974, FOUR travellers returned from the Hippie Trail (an overland journey spanning from Europe through Southeast Asia) and bought land in southern Queensland with a plan to start a spiritual commune. A couple of months later, the new owners were at a meditation retreat held by two visiting Tibetan monks and invited them to see the property. On that first visit, the Chenrezig Institute was conceived. The monks were ambitious; they envisioned a Buddhist sangha (community) with a gumpa (a sacred teaching site), as its heart.

Chenrezig expanded during the late 70s and 80s, becoming a refuge for young people curious about Buddhism who were seeking a deeper experience. Today, with a new rinpoche (spiritual teacher) and plans for a grandiose stupa, Chenrezig continues to evolve. Venerable Ailsa Cameron, one of the community of nuns who lives on the property, donned a tool belt in the early years and worked alongside the men to build the community to what it is today.

Yet, even with her strong guidance in Buddhist principles, she still needs to navigate personality issues with community members. “There are always going to be people you cannot agree with,” Ailsa says. “But they are the ones who present the opportunity to practise.”

Colin Crosbie, one of the original owners, agrees. “You come across all sorts of situations – especially because of my Scottish heritage I want to tell them, ‘Pull your head in,’” he says. “Your patience and compassion and respect for others is on the line daily.”

Chenrezig survives as a community because it adapts. The hippie support of early years has waned, replaced with the interests of new immigrant communities from Bhutan and Nepal. It’s on their pilgrimage trail.

On his 2011 visit to Australia, the Dalai Lama visited Chenrezig and consecrated the Garden of Enlightenment as a place for contemplation and a resting place for the ashes of loved ones. The eight stupas on site depict the eight great deeds of Buddha’s life. The statues are crafted on site by Jim Stint and

funds from the sale of these support Chenrezig. Most people purchasing a place for the ashes of their loved ones or pets are not Buddhist. Jim, aged 77 and “from the coast”, has purchased a burial plan at Chenrezig: “It’s so peaceful here,” he says and points to his daughter, Paula. “She will always love to come and visit after I’m gone – spend a day, be happy.”

THE MODERN ECOVILLAGE movement is the direct descendant of the 1970s commune movement in Australia. But, in contrast to earlier hippie versions, governments are back in the picture, supporting projects with the milder communal model of shared, low-impact infrastructure and sustainability principles that large-scale contemporary eco-developments propose.

There’s also a shift in structure away from shared ideology as the basis of community towards shared spaces and away from co-ownership, to private ownership of houses. On the Central Coast of NSW, approval has been secured to expand the sustainable-living inspired Narara Ecovillage to 300 houses. John Seed, originally from Bodhi Farm, bought a house in Narara as a retirement plan to be closer to his children. He says he never imagined living in a “bourgeois” development like Narara. He was surprised by its community spirit.

In a similar vein, the aptly named Ecovillage in the Currumbin Valley provides sustainable living for the well-heeled on the Gold Coast in Queensland. In this multi award-winning environmental paradise, some of the 140 houses each sell for more than \$2 million.

A roller-coaster descent into the Mary Valley, west of Maleny in the Sunshine Coast hinterland, is the shining star of the Australian eco community movement: Crystal Waters Eco Village. It’s the first of its kind in the world. It’s a village because it has shops, including a café, bakery and monthly market, plus 83 half-hectare plots clustered around man-made lakes and forest and populated by 250 residents and mobs of very relaxed, well-fed eastern grey kangaroos. ►

A photograph of a child in a red shirt running across a grassy field towards a dense forest. The scene is bathed in soft, golden light, suggesting late afternoon or early morning. The forest is thick with tall trees, and the child is a small figure in the foreground, emphasizing the scale of the natural environment.

The modern ecovillage movement is the direct descendant of the 1970s commune movement in Australia.

“The idea of permaculture is not to go into nature and live a natural life, but to take areas that are degraded and bring them back to life. It’s a regenerative approach,” says Morag Gamble, a Crystal Waters resident, who’s made her home and career in the permaculture world. Crystal Waters perfectly expresses this ethos. When Morag arrived here 30 years ago, it was a paddock. Now, 50 per cent of the 260ha development is regenerating forest – green sanctuaries that encircle the residential areas and connect to the lovely Mary River that snakes through the centre of the property.

For Morag and her family there is also the bonus of safety and security for her children, who roam free through this landscape. “We know all the neighbours and we know they are being looked out for,” she says. Growing up here means her two children have strong ecological awareness. “Whether they know it or not, they will take that with them through life,” Morag says.

It sounds ideal – utopian, even – and yet there is one factor that can bring down an entire community as effectively as clear-felling a forest: personal disagreement. One aggrieved member can finish a community by wearing down committees and depleting resources of goodwill.

Morag Gamble’s son, Monty, runs free in his 260ha backyard at Crystal Waters. “Growing up here means my children have strong ecological awareness ... They will take that with them through life,” Morag says.

Jason Hilder, a former resident of Crystal Waters and ambassador for the Global Ecovillage Network, scores the Crystal Waters community poorly on social cohesion, and says advocating for change within the community had a big effect on his confidence and mental health. “Eighty-six lot holders each have a say and [making] a decision can take a really long time,” Jason says. “There’s also significant difference between people who are compatible and proactive around a philosophy.”

Canadian novelist and poet Margaret Atwood, author of *The Handmaid’s Tale*, believes the question facing those seeking alternatives to mass society is, “What sort of happiness is on offer and what is the price we pay to achieve it?” The housing crisis and fears for survival are bringing intentional communities into the mainstream it has eschewed for centuries, transforming the model into a blueprint for the planet’s future. People want to escape the utter loneliness that can pervade society and do it in a sustainable, sharing, caring, eco-friendly way. The biggest drawback remains the most fundamental: living with thy neighbour.

THE RADICAL FAERIES have been experimenting with different ingredients for the magic pudding of harmonious communal co-existence for decades. They have a long backstory, but essentially the movement took shape on the US West Coast in the 1960s and 70s through gay-rights activist and communist Harry Hay. A lot of gay men in San Francisco at the time did not feel represented in the movement.

Harry became interested in Native American rituals and how he could use them to forge a gay social tribe. He held gay “gatherings”, away from cities in New Mexico and Southern California, where participants could be free to explore a more spiritual side of gay liberation, working with methods he called Heart Circles to help unshackle gay men from doubt and self-hatred.

Historian Ian ‘Teacosy’ Gray visited the original Faerie sanctuary at Short Mountain in Tennessee in 1980 and returned to Australia with a vision to create one here. After a few false starts, he and some friends established Australia’s only Faerie sanctuary on 53ha of rainforest and pastureland west of Nimbin – a spectacular piece of land with an old farmhouse occupying the high ground at its centre.

The sage green timber house has a wide, covered verandah that overlooks the green striations of the Great Dividing Range to the north and west. This site has been home to successive waves of resident Faeries and visitors who, until recently, all slept and shared meals in the house.

For members of the community, Faerieland is not merely a roof over their heads or cheap accommodation, although residents only pay a modest weekly stipend to live there. It’s a refuge where the work of personal and interpersonal

transformation can go very deep. After 22 years, Teacosy no longer lives at Faerieland but remains an elder, mentoring the next generation of Radical Faeries in what he and the other residents are calling “Faerieland 2.0”.

Faerieland is unique because it is structured around stewardship, not ownership, of the remnant rainforest. Slowly over the years, residents have attacked the lantana weeds strangling young rainforest saplings and given it breathing space. Radical Faeries hold a neo-pagan view that we are interconnected and nature is sacred. Faerieland 2.0 is shaping up to be more inclusive, expanding from supporting gay men in their journey to wholeness to include neurodiverse and non-binary people. “We are all stewards and offer something to the community project,” says long-time Faerieland resident Spryte.

The work on building community is ongoing. Teacosy believes that the core value of community is not fitting in, but finding a place where you feel safe, where you can take care of yourself and others, and feel seen. Hosting a ‘Heart Circle’ is a Radical Faerie tradition that helps foster community.

During a Heart Circle, Faeries get to share what they feel while others in the circle listen with respect and love. “I’ve seen some of these go on for days,” says Razr, who arrived in February 2022 when Faerieland 2.0 began. “We walked into a fully functional community. Some people just need more structure, others don’t, that’s what we are negotiating now.” ►

Faerieland 2.0 residents and friends adorn the old liquid amber tree in front of the communal house. Front row: Ian ‘Teacosy’ Gray, Razr and Chameleon. Back row: Sfia, Circus and Tellurian.





“People arrive and tell us they’re running away from something,” Teacosy adds. “Instead, we encourage them to tell us what they are running towards ... what they have to offer.”

Spryte moved here from the NSW South Coast, where he ran a successful Pilates studio catering to older gay retirees from the city. “They wanted a certain kind of country life, but I always wanted something more ... alternative. And then, you find your tribe and go, ‘Oh, now I make sense’.”

The Faeries have a sacred drag shed on the property where they transform. “Drag brings us together,” Razr says. “The idea is that we take clothing and remove the gender attachment to it.”

Razr, who came from the gay scene in San Francisco, is

dressed for a community working bee in an elegant black outfit with a large-brimmed hat and netting. Spryte collects a machete and chats to Sphere, who’s wearing a 2m-long python around his neck.

Razr chats to Orca, the youngest resident of Faerieland, as they head out with the others to cut a path through summer undergrowth to the creek below.

“It’s not easy living in community. Part of being here is dedicating a certain percentage of your time making sanctuary, whether that be environmental, cultural or relationship,” Razr says. “And we try to value our relationships as much as we value our mission.”



“We try to value
our relationships
as much as we
value our mission.”

Children growing up in Murundaka have free range of both resident families and special places. Community living helps parents share duties and carve a little free time for themselves.

EVERY INTENTIONAL COMMUNITY in Australia is unique. Where Faerieland is fluid and changing, Murundaka Cohousing Community in Melbourne’s outer suburbs is a highly structured urban oasis. The product of enlightened state planners in the 1980s, co-housing – targeted towards low-income renters – is flourishing in Victoria’s cities.

“People increasingly want to live rich lives without spending millions of dollars,” says Giselle Wilkinson, who founded the Murundaka Cohousing Community in 2011.

On a grey Friday afternoon, three cooks are chopping veggies in the common room, while a fourth is picking flowers from the garden to place on the four communal tables. There is a small

library, a few couches and whiteboards close to the open kitchen that announce upcoming committee meetings for gardening, cooking, wellbeing and finance.

Mikoto, a founding member of the community, is head chef for tonight’s communal meal of sushi rolls. A quiet young man called Sonal is helping her. He grew up in Melbourne and recently moved back after living in France. His partner speaks little English so he decided Murundaka would be a soft landing for her – adjusting to a new country without the support of a tight community would be too hard.

Every resident here is an owner of sorts, with a \$1 share in the company. By signing up, you agree to the Murundaka ►



There is a work roster for weeding and planting in the Murundaka Garden, the green heart of life in the co-housing complex (left). Communal activities are a requirement of residency at Murundaka. For the Friday night community dinner, long-time resident Mikoto (below, at right) orchestrates the food preparation for sushi rolls.

In the Melbourne town of Coburg, Samuel Alexander and his wife, Helen Lamb, have turned their suburban garden into a highly productive permaculture oasis (right). Furry father and daughter, Otto and Hazel, survey the scene.



Code of Conduct and responsibilities, such as committee work and helping make communal dinners. The residents share washing machines, tools and maintenance duties. Some people neglect the Friday night dinners and Mikoto is disapproving: “Everybody is juggling ... but if you don’t come for the common meal once a week, why are you living here?”

The community faces in, with the common room, garden and courtyard at its centre. In a community enveloped by suburbia, the world outside becomes the ‘other’. Mikoto waves a dismissive hand to the street: “Outside of here it is all nuclear families,” she says. “I’m still embracing this place. I love it.”

The 35 residents range from infants to pensioners. Murundaka’s mission is to provide secure housing for people who cannot afford high rents. Once your income reaches a certain level, you leave and make way for other residents.

Co-housing resident Fleassy lives here with her daughter and partner Rory. “Yes, this is affordable housing but what the community gives you is actually affordable living,” Fleassy says. “For a single parent it makes a huge difference in quality of life you can offer a child – mentally, emotionally and financially.”

Articulate and cheeky 10-year-old Amalie, the daughter of Alex and Emma, has grown up in the community. She sums up the dynamic perfectly: “We’re more like family than friends. We fight like family and we celebrate like family.” Another resident, Rachel, agrees. “Living in community is

a lot!” she says. “It’s a revolving door with the kids, like living and working in a big fish-and-chips shop, but the support of the other parents is priceless.”

Like an extended family, the whole community travels away from the city every year for a five-day retreat – a family holiday, but with more purpose. They hang out together, hone their communication skills and practise the Thomas-Kilmann method of conflict resolution to remove the build-up of relationship plaque from the communal harmony.

PROFESSOR SAMUEL ALEXANDER, lecturer and researcher at The University of Melbourne and co-director of the Simplicity Institute, is someone who has advocated for intentional communities to adopt a more hardcore approach to sustainability. He believes intentional communities should be prioritising the climate crisis, not lifestyle retreats.

Samuel’s 2013 novel *Entropia* envisaged a utopian society on an island in the South Pacific after a climate armageddon. Inspired by the novel, a family offered him 8ha of land in Gippsland, Victoria, to create a utopian community. Sam got to work planning and building a display village for future survival and called it Wurruk’an – meaning “to seed a new Earth story”. The experiment attracted ecowarriors, hardcore environmentalists, including a young Dan Prochazka, with the aim of reducing their ecological footprint to near zero. They used the motto



People don't get a choice about which family they are born into, but living in community is a conscious decision.

“Radical Simplicity” to describe their lifestyle. It was hard, rewarding work, a call to arms for ecowarriors to walk the talk.

“That was an attempt to radicalise and politicise the ecovillage movement to whatever extent we could,” Dan says. Dan was a true believer, acting on the realisation that single family living arrangements are unsustainable and take up too many resources. The experience at Wurruk'an confirmed for him that more people have the capacity to live under the same roof than currently do.

“There's a middle-class affluence that can underpin many ecovillage experiments,” Samuel says. “They might be lovely people with good values wanting to live a simpler life but they are also escapists; middle-class people leaving the horrible city and buying land elsewhere, living a lovely peaceful life, growing their own food. Their environmental footprint is still outsized.”

According to Samuel, there's also a deep ignorance about what living in community involves: we believe we know how to do it, but we don't – we need education. He says there are entrenched behavioural patterns born out of our “disposable” social world and the infrastructure of private housing; we avoid irritation, we walk away, leave the city or our job when somebody or something bothers us.

People don't get a choice about which family they are born into, but living in community is a conscious decision. At the very least, it should involve developing a knowledge of

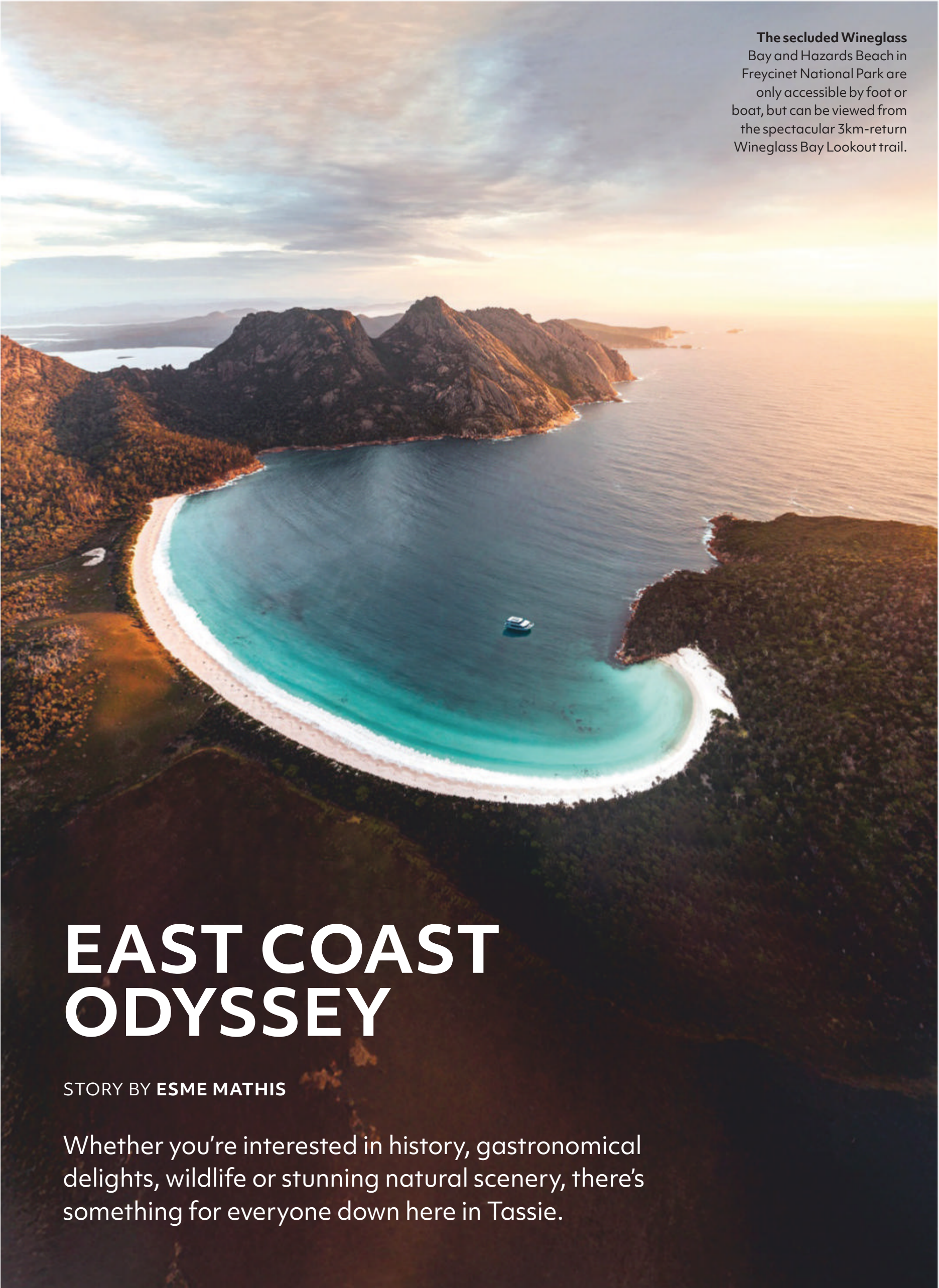
available tools and techniques, like the Radical Faeries' Heart Circles, and an understanding of non-violent communication to aid members to live together in harmony and productively.

American naturalist and essayist Henry David Thoreau wrote that “a man is rich in proportion to the number of things he can afford to let alone”. On so many levels, living in community is hard work, yet the shared nature of it simplifies, diversifies and lessens the load.

“It's a real magic feeling when you feel everyone's putting their energies towards a good cause,” Dan says. “Trying to have as much as possible of that in our lives is the dream.”

Dan and Nicola's Open Field Homestead is up and running. The common dinners are a huge success. The 10 residents eat together six nights a week, which ticks one of Bill Metcalf's rules for a successful community. There have been a few tensions between certain individuals but so far they've all been resolved amicably. There seems to be a real motivation to positively resolve disputes and maintain relationships.

The aspect that spans all intentional communities is the value of working together to create a shared vision, whether it's planting forests or making schools. The dominant ethos is about leaving things better than you found them. At Chenrezig, former road manager and current director Steve Alberts calls it “serious history”. “We're making stuff for millennia,” he says. “People come and go, but what we leave will be here long after we are not even a memory in people's minds.”

An aerial photograph of Wineglass Bay in Tasmania, Australia, taken during the 'golden hour' of sunset. The bay is a crescent shape with a white sandy beach and crystal-clear turquoise water. A small boat is visible in the center of the bay. The surrounding landscape is rugged, with dark, forested hills and mountains. The sky is filled with soft, colorful clouds in shades of orange, yellow, and blue.

The secluded Wineglass
Bay and Hazards Beach in
Freycinet National Park are
only accessible by foot or
boat, but can be viewed from
the spectacular 3km-return
Wineglass Bay Lookout trail.

EAST COAST ODYSSEY

STORY BY **ESME MATHIS**

Whether you're interested in history, gastronomical delights, wildlife or stunning natural scenery, there's something for everyone down here in Tassie.

IT'S THE SECOND day of AAT Kings' Tassie's East Coast Highlights tour, a five-day guided coach tour from Launceston to Hobart, and we're on our way to Bridestowe Lavender Estate, the largest lavender farm in the southern hemisphere.

I'll be honest: before yesterday, exploring Lutruwita/Tasmania on a guided coach tour wasn't on my radar. I know they're popular but I'd never tried it. But one day on AAT Kings' luxury coach and I've come around to the idea.

Coach touring takes away the stress of travel, allowing you to sit back and enjoy the scenery while someone else deals with the logistics. It's a great way to make friends and learn new things. (Our guide, Carolyn Tipper – a seventh-generation Tasmanian – has encyclopaedic knowledge about all things Tassie.) And the itinerary? Whether you're drawn to natural scenery and wildlife encounters, historical sites and towns, First Nations cultural experiences or sampling local food and wine, this trip has it covered.

Yesterday we were treated to lunch at the Tasmanian Gourmet Sauce Company at a historic homestead on the outskirts of Evandale, a National Trust-classified Georgian village. Returning to Launceston, we rode the chairlift to Cataract Gorge, followed by a six-course dinner at Peppers Silo Hotel (guests dine at own expense on the first night) – small wonder that Launceston became a UNESCO City of Gastronomy in 2021.

Today, we've ventured about 50km northeast of Launceston to Bridestowe Lavender Estate. From each December to January, this 50ha farm transforms into a carpet of purple, attracting up to 1500 visitors a day. It's arguably one of Tasmania's most recognisable attractions – although some might object to that label.

"It's a working farm ... [not] a farm that's just growing a pretty flower that looks lovely in the rows," explains Kim Weston, Bridestowe's tourism manager. "The flowering starts around late November, in about two or three weeks, and if you have a close look at some of the plants, you can see the buds just starting to happen. As soon as the farm goes into flower, we get busy doing the harvesting."

We've gathered in a distillery for a fragrance workshop. Kim explains that Bridestowe's lavender oil is extracted through steam distillation, with about 200kg of lavender yielding two litres of oil in 45 minutes. Most of this oil will be exported to Europe, Japan and America for perfume, cosmetic and aromatherapy uses. The lavender that isn't used for oil is dried and used to make culinary products and sachets for heat packs or sold to other companies. After the fragrance workshop, we're treated to a scoop of lavender ice cream and tea.

THAT AFTERNOON, WE travel to East Coast Natureworld in Bicheno to meet some Tassie devils. After the feeding, we meet four joeys. Two are about six months old and squirming with energy. The other two, about a month younger, doze inside a blanket.

Like many sanctuaries, Natureworld plays an important role in educating the public about devil facial tumour disease (DFTD). "Researchers and scientists can't be out here talking to people, so we're that bridge between the scientific community



Bridestowe Lavender Estate's flowering season, between December and January, attracts thousands of visitors each year.



and the general public," says Natureworld's wildlife manager, Natalie Hill.

DFTD was first documented by scientists in 1996 and has since wiped out an estimated 90 per cent of Tasmania's wild devil population. Spread through biting, DFTD – one of the only known transmissible parasitic cancers in the world – causes large tumours on the face and neck that eventually kill a devil by preventing it from eating. But it's not all doom and gloom. Natalie says experts are now refining an oral vaccine that can provide a devil with about six months' immunity against DFTD. It's far from a silver-bullet solution, but it's certainly a step in the right direction. Distributing this vaccine is a major challenge, but scientists are experimenting with AI facial recognition technology to deliver doses to devils in the wild.

Back on the coach, we learn AAT Kings has donated close to \$40,000 to the Save the Tasmanian Devil Appeal. The tour operator has partnered with the TreadRight Foundation to ensure its tours have positive impacts on the people, communities and wildlife, modelled off the United Nations Sustainable Development goals. "Every person that buys one of our trips actually contributes ... [to] a carbon fund," says Ben Hall, AAT Kings' CEO. This carbon fund supports sustainable projects, from funding GreenWave's ►



The Port Arthur UNESCO World Heritage-listed site welcomes about 300,000 visitors a year to explore the 32 buildings and ruins.

regenerative kelp farms, contributing to a reforestation project in Far North Queensland's Daintree Rainforest, and, of course, aiding efforts to save Tassie devils.

OUR COACH IS unusually quiet as it rolls into Hobart the following afternoon, as many on board take a much-needed nap. We'd woken up early that morning to explore Freycinet National Park and take on the 3km-return trail to Wineglass Bay Lookout, followed by a stroll around Coles Bay Conservation Area. Our next stop was Richmond, a beautifully preserved Georgian village with sandstone cottages, oak trees and rose gardens seemingly transplanted from the English countryside.

We're about to hear about the history and customs of the Palawa people on a bush tucker tour at Rosny Park. Trawlwoolway woman Trish Hodge, of Nita Education, greets us in a possum fur cloak and welcomes us to Country. She's carrying a bowl made from dried kelp packed with local bush tucker.

We sample saltbush, sea purslane and she-oak, then follow Trish to a ground-creeping succulent with bright pink flowers called pigface. "When these little bulbs go bright red and soft, you can pick them and eat them. They are like a sickly sweet, salty strawberry – and they are the most amazing fruit on the planet," Trish says. "The leaves are also very similar to aloe vera. Add that juice to any sort of burn, like sunburn or fire burn, to rashes, eczema, acne, stretch marks, all sorts of skin conditions, and after a few days of applying it, it will fix everything."

Trish's knowledge of Country comes from a lifetime of being connected to her heritage. It wasn't always easy; when she was in school, a teacher told Trish she couldn't possibly be Aboriginal Tasmanian. "Up until 1995 in Tasmania, the government and historians said that Truganini was the last Tasmanian," Trish says. "She was only teaching what she'd been taught. Later on, that teacher – Mrs Hughes – was doing her family tree, and she rang mum because she found out *she* was Aboriginal."

Trish says stories like these are becoming more common in Tasmania, as people research their family histories. "There are a lot of Aboriginal people that didn't know their history growing up," she says. "I was very fortunate."

Trish is descended from a warrior and seer called Mannalargenna. "Mannalargenna was the chief of the North East nation, and he had four daughters," Trish says. "The four daughters were taken by British and American sealers, and it's through the four daughters of Mannalargenna that most Tasmanian Aboriginal people come from today, [along with] a couple of other women from the North East."

Trish is descended through Mannalargenna's daughter Woretmoetyenner.

She founded Nita Education with her brother to help inform the public about the Palawa people, combat lingering misinformation about their history, and prove their culture is very much alive.



Port Arthur Historic Site (left) is Australia's best-preserved convict settlement, boasting 32 buildings and ruins sprawled across more than 40ha.

A Tasmanian devil joey (right) peeps out from a blanket at East Coast Natureworld in Bicheno.

On a bushtucker tour led by Nita Education, guests sample saltbush and sea purslane, which is passed around in a traditionally made kelp bowl (below).



OUR TASSIE EAST Coast adventure is drawing to a close, but there's enough time for a Derwent River cruise with Pennicott Wilderness Journeys and a trip to Australia's most-famous convict site: Port Arthur. The UNESCO World Heritage-listed site welcomes about 300,000 visitors a year to explore the 32 buildings and ruins. Guide Colin Knight leads us around several sites, bringing history to life with both tragic and colourful stories.

During his lifetime, Colin has witnessed shifting attitudes towards Australia's convict history. Having convict ancestry is no longer a shameful, taboo topic, but worn as a badge of pride.

"Past generations liked to sweep it under the carpet and disregard it all together," Colin says. "Granny wouldn't mention it. People changed their names, changed the spelling of names. Convict records, sadly, were destroyed. These days, people actively look for a convict in their past, whereas not so long ago they were actively trying to hide them. And my experience is, if that [convict] is really bad, they like it even better." Tasmania's convict sites are now a major drawcard for tourists, from both mainland Australia and overseas. It's among the many reasons why the Apple Isle is now regarded as one of Australia's top travel destinations. ■

More info: aatkings.com/TasEastCoast

Esme Mathis travelled courtesy of AAT Kings.

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TAKE AN UNFORGETTABLE birding adventure through Australia's Wild Top End, where vibrant birdlife thrives across stunning, diverse landscapes. Imagine spotting a Wilkins' rock wallaby amid ancient rock art, hearing the haunting call of a chestnut-quilled rock pigeon echoing through the air, or witnessing a breathtaking sunrise by a dry creek bed, as Gouldian finches gather at the last remaining puddles. Let our expert naturalist guides immerse you in the magic of this ancient land on a small-group journey that will leave you inspired and connected to nature.

HIGHLIGHTS

- Visit the most important sites in Kakadu, Nitmiluk and Litchfield national parks with the main focus on birdwatching and photography operated at a slower pace
- Take the Bardedjilidji Sandstone Walk, which takes us deep into some of Kakadu's most remarkable geological formations, where we learn how the Kakadu escarpment was formed millions of years ago
- Visit Ubirr, which offers some of the most compelling wilderness landscapes on Earth
- Take an Aboriginal-guided boat tour out into the wilderness of the East Alligator River and step onto Arnhem Land
- Visit Pine Creek and have a look around the Water Treatment Plant, where there are often sightings of very unusual birds, such as the oriental pratincole, great bowerbird and a range of waders.

DEPARTURES & FARES

Duration: Five days

Group Size: Maximum eight people

Activity Level: Easy to moderate

Departing:

11 June 2025

25 August 2025

31 August 2025

Prices:

From \$3,990pp twin share

From \$4,590pp single

YOUR EXPERT GUIDE



SCOTT ROBERTS

Meet Scott Roberts, one of Australia's most passionate and experienced wildlife and birding experts! With a wealth of knowledge spanning natural history, ecology, geology, and both Indigenous and European history, Scott brings a deep understanding of the land to every tour. His infectious enthusiasm and wealth of experience have made him a sought-after guide throughout Australia and New Zealand, as well as a respected guide trainer. Whether he's sharing his love for wildlife or unravelling the wonders of the natural world, Scott's insights and energy will inspire you to see Australia like never before.

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MANTA RAYS ON LADY ELLIOT ISLAND

Join an Australian Geographic Citizen Science Expedition.

Each manta ray has unique ventral markings that are as distinctive as fingerprints.

EMBARK ON A thrilling adventure with Project Manta, a leading multidisciplinary research program established at The University of Queensland in 2007 and now based at the University of the Sunshine Coast. Delve into the fascinating world of manta rays as we investigate their population biology and ecology in eastern Australia. By using photo-identification, where each manta ray's unique ventral markings act as distinctive 'fingerprints', we engage citizen scientists like you in our crucial data-collection efforts.

Join us on this remarkable expedition, led by Dr Asia Haines, our esteemed expert and project leader. Take this opportunity to actively participate in our manta conservation programs while also relishing moments of relaxation on the captivating Lady Elliot Island. Dive into the "Leaf to Reef" project, exploring the intricate relationship between the island's revegetation program and its impact on the surrounding reef ecosystem, from groundwater, to nesting birds, to coral health.

Be a part of something extraordinary. Join us on this exhilarating journey to give back to nature and make a meaningful difference!

HIGHLIGHTS

- Become an Ocean Ambassador for Citizen Science, working alongside a manta ray researcher to protect marine life and contribute to conservation efforts.
- Enjoy a captivating Reef Walk and discover myriad marine creatures, including sea cucumbers, starfish, sea urchins, coral, clams, crabs and colourful fish of all shapes and sizes.
- Embark on a Night Explorer tour and learn about some of the nocturnal animals on and around the island, like ghost crabs, land hermit crabs, frogs and nesting or roosting sea birds.

DEPARTURES & FARES

Duration: Five days

Group Size: Maximum 12 people

Activity Level: Easy to moderate

Departing:

21 July 2025

13 August 2025

15 September 2025

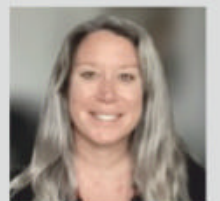
Private dates available

Prices:

From \$4,490pp, twin share

From \$4,990pp, single

YOUR EXPERT GUIDE



DR ASIA HAINES

Meet Dr Asia Haines, an Australian marine scientist dedicated to conserving threatened species, particularly sharks and rays. Since 2013, she's been an integral part of Project Manta, managing the East Coast sighting database and leading research trips to Lady Elliot Island, focusing on manta ray ecology and conservation. Her recent doctorate on the spatial ecology of manta rays underscores her commitment to understanding and protecting these majestic creatures. Join Dr Haines on an expedition to delve into the fascinating world of manta rays, contributing to their conservation while exploring their habitat.

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Journey to the best birding hotspots in Far North Queensland

THE WET TROPICS stretch from Townsville to Cooktown, encompassing about 9000sq.km of rainforest interspersed with farmland, rivers and tropical savanna, not to mention coastline and coral cays. Such an array of habitats explains the region's high diversity of flora and fauna. With more than 450 bird species recorded, including 13 that are endemic, it's Australia's twitching mecca – and you don't even have to venture far from Cairns to enjoy a rich bird-watching experience in a variety of habitats. Join us on this journey as we cover a vast variety of birding hotspots in Far North Queensland!

HIGHLIGHTS

- Explore Cape Tribulation, one of the best spots to see the iconic southern cassowary, as well as the leaden flycatcher, yellow-breasted boatbill, pied monarch, wompoo fruit dove, shining flycatcher, azure kingfisher, Pacific heron and white-bellied sea-eagle.
- Stay at Kingfisher Park Birdwatchers Lodge, owned and operated by guides and naturalists Carol and Andrew Iles, who've worked in the area since 1999. The lodge is famous for its population of breeding buff-breasted paradise kingfishers, which are found in the lodge grounds from November to April.
- A pre-dawn cruise down the Daintree River has been the highlight for many birdwatching enthusiasts in Far North Queensland. Key species include the great-billed heron, Papuan frogmouth, azure kingfisher and black bittern. Also expect to see saltwater crocodiles, green tree snakes, water dragons and butterflies.
- Exclusive access to the Forever Wild Shared Earth Reserve, boasting more than 220 recorded species. Their highest bird count in a single day is 98 species.

DEPARTURES & FARES

Duration: Five days

Group Size: Maximum six guests

Activity Level: Easy to moderate

Departing:

20 May 2025

31 May 2025

18 June 2025

15 July 2025

13 August 2025

Private dates available

Prices:

From \$3,590pp twin share

From \$4,290pp single

YOUR EXPERT GUIDE



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CALL OF THE WILD

The haunting wail of the bush stone-curlew is returning to places where it's long been missing.

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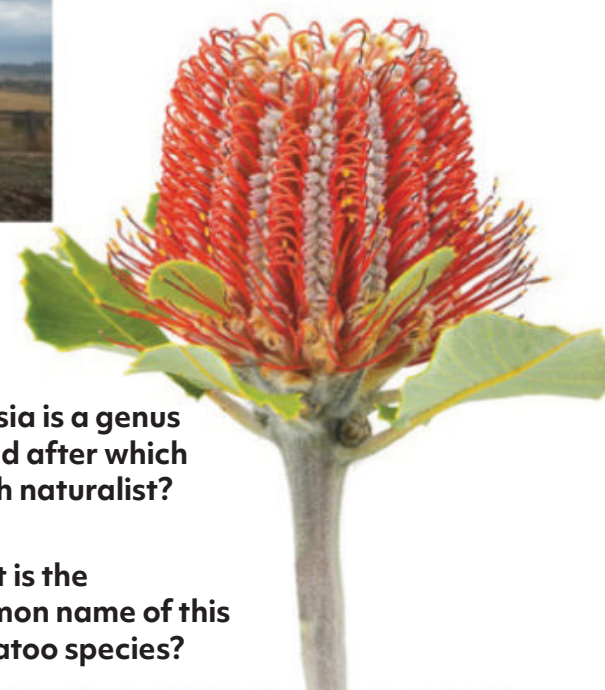
AUSQUIZ

How much do you really know about Australia?
Test yourself!

- 1 How many opposable thumbs does a koala have per hand?
- 2 What is the southernmost point of mainland Australia?
- 3 What is the name of the highway that spans the Nullarbor Plain?
- 4 What is the name of Australia's deepest cave, located in southern Tasmania?
- 5 What "Big Thing" is found at Kingston SE in South Australia?
- 6 Which two Aussie mammals lay eggs?
- 7 True or false: kookaburras are native to Western Australia.
- 8 Which river is the largest tributary of Sydney Harbour?
- 9 To which three Australian colonies were convicts transported directly from Britain?
- 10 Which wallaby species has a horny projection at the end of its tail, similar to a fingernail?
- 11 Great Sandy National Park is located in which Australian state or territory?
- 12 What type of animal is a hairy marron?
- 13 What is the name of Australia's second-tallest mountain?
- 14 What type of mineral was mined at the Argyle Mine in the Kimberley, Western Australia?
- 15 What is the indigenous name for Tasmania?
- 16 In 1790, the flagship of the First Fleet, the HMS *Sirius*, sunk off a reef on which island?
- 17 Which native animals were once called "native cats"?



- 28 This historic station (left) in Victoria is widely considered the birthplace of the Australian kelpie. Can you name it?



- 18 Which two cities were connected in 1917 by the Trans-Australian Railway?
- 19 How many sub-species of short-beaked echidna are found in Australia?
- 20 What was the name of the first European settlement in the colony of South Australia?
- 21 In 1926, the cactus moth was introduced to Australia to eradicate which noxious weed?
- 22 Are kangaroo paws annual or perennial plants?
- 23 Who led the Australasian Antarctic Expedition in 1911–14?
- 24 What is the name of the largest island in the Gulf of Carpentaria?
- 25 In what year was Port Arthur established as a penal settlement?
- 26 Which Australian filmmaker directed the 1994 cult classic *Muriel's Wedding*?

- 29 Banksia is a genus named after which British naturalist?

- 30 What is the common name of this cockatoo species?



- 31 What is the name of this First Nations actress, activist and politician?



- 27 What is the common name of this whale species?



- 32 *Dicksonia antarctica* (left) is more commonly known by what name?

FOR ANSWERS See page 128 ►



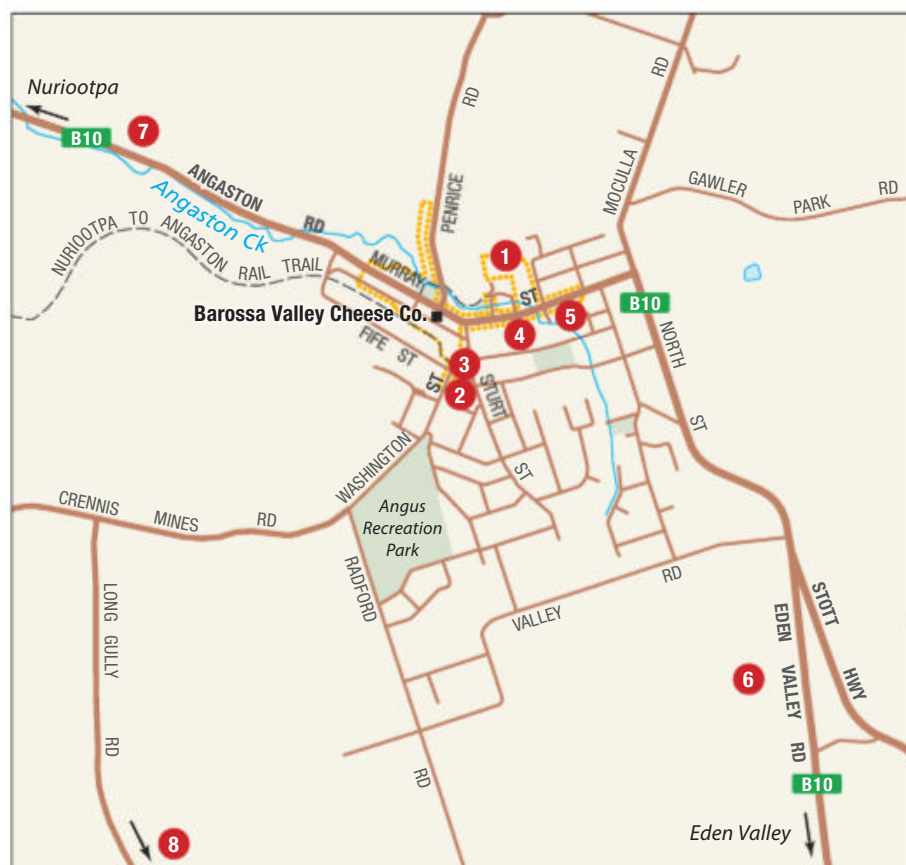
The countryside around the town of Angaston, famed for its bucolic rolling hills and charming fertile vineyards, is easily explored by bike.

Angaston, SA

The heart of the Barossa Valley's wine-producing region lies deep in this picturesque town.

THIS CHARMING, TREE-LINED historic town on the Barossa Valley's eastern side was named after one of its early settlers, politician and local businessman George Fife Angas. The valley itself was named by Colonel William Light after Barrosa in Spain, where he'd fought against the French in 1811 during the Peninsular War. The original village of Angaston, which was originally known as German Pass, comprised a single house and several simple dugouts. The founding father of the town, Angas, arrived in 1851 and two years later Angaston was proclaimed a District Council. An early description of the area claimed it was "the richest and best watered district in the state ... of most splendid soil, every way adapted for the location of hundreds of settlers". This richness led to vines and orchards being planted. Trades and industries connected to the vineyards quickly developed and Angaston became an important service centre for the district. By 1900, the district was known for its agriculture, wine and orchards and it quickly became a popular daytripper destination from Adelaide. On weekends, people came to explore the winery cellar doors of the Barossa Valley, particularly the famous Saltram and Yalumba wineries, both of which are easily accessible from Angaston. The charming combination of heritage buildings, important vineyards and ease of access from Adelaide have ensured that it is a town that's ideal for exploring.

BRUCE ELDER



Angaston is 86km north-east of Adelaide via the Main North Road and Sturt Highway.

ORIGIN OF NAME

The town takes its name from the Scottish entrepreneur, George Fife Angas, whose South Australian Company, by 1841, had acquired 26,000 acres (10,552 ha) which included the site of the future town.

VISITOR INFORMATION

Barossa Valley Cheese Company, 67B Murray Street, Angaston.

Phone: 08 8564 3636. Open 10am–4pm, except Tuesdays.

USEFUL WEBSITE

angaston.org.au



Bursting with food, wine and accommodation venues, Angaston's main street – Murray St – is a great place to begin exploring the delights of the Barossa Valley.



Angaston timeline

- Before European settlement, the district was inhabited by the Peramangk, Ngadjuri and Kurna First Nations peoples.

- By 1838, explorers had reached the Murray River passing through the Barossa Valley.

- George Fife Angas (pictured) travelled to London as a director of the South Australian Company to promote colonisation. He met Pastor August Ludwig Christian Kavel who was helping Lutherans (who were being persecuted by the King of Prussia) to emigrate. Angas assisted with a generous £8000 donation and the first German settlers arrived on 25 November 1838.



- By 1841, the German settler Johann Schilling and his family had become established at Angaston. Their house, the first in the district, was little more than a dugout with a thatched roof.

- George Fife Angas, by 1841 while still in England, had acquired 26,000 acres (10,552 ha) and 10,000 sheep on land which subsequently became part of the town of Angaston.

- In 1843, Angas's son, John, arrived in Angaston to manage his father's estates.

- John Angas encouraged the growing of vines and orchards in the valley.

- The Angaston Hotel was opened for business in 1846.

- A police station and court house were completed in 1855–1856.

- By the 1880s, Saltram Winery was exporting wine.

- Today, Angaston is a popular starting point for visitors exploring the wineries of the Barossa Valley.

Places of interest

1 ANGASTON HERITAGE WALK

You'll find a brochure at the Barossa Valley Cheese Company detailing this delightful urban amble. It takes up to two leisurely hours and includes the highlights 2, 3 and 4 that are detailed below.

2 UNITING CHURCH (1878)

This bluestone Gothic Revival style church, on the corner of Sturt and Fife streets, features original stained glass windows shipped from England. Its foundation stone was laid by George Angas' son John on 13 May 1878.

3 ANGASTON TOWN HALL (1911)

Like many early Angaston buildings, construction of the town hall – built of grey marble on a base of local bluestone on the corner of Sturt and Washington streets – was subsidised by the Angas family.

4 BAROSSA BRAUHAUS HOTEL (1849)

This building in Murray St began as the single storey New Inn, built by William Doddridge, the town's original blacksmith (see below). In 1884, a storey was added and in 1979 it became the Barossa Brauhaus Hotel.

5 ANGASTON BLACKSMITH SHOP & MUSEUM (1876)

This corrugated iron shed on Murray St was where three generations of Doddridges operated the town's blacksmith shop. As recently as 1965, horses were still being shod there. It's now a working museum with a shop run by volunteers on weekends and public holidays from 1–4pm.

6 YALUMBA WINERY

The Yalumba Winery, located at 40 Eden Valley Road, dates back to 1847 when Samuel



Tourists can step into history at the town's Blacksmith's Shop and Museum and be intrigued by volunteers demonstrating the ancient craft.

Smith arrived in South Australia. By 1849, he'd planted his first vines near Angaston, making Yalumba the oldest family-owned vineyard in Australia. It is open daily from 10am to 5pm for tastings and sales.

7 SALTRAM WINERY, ANGASTON

The Saltram Winery on Angaston Rd, just west of the town, dates from 1859 when Englishman William Salter formed a partnership with his son, Edward, and planted the first vines – 10 acres (4.047ha) of shiraz. By 1862, they'd produced 8000L, which grew to 182,000L by 1891.

8 MENGLER HILL LOOKOUT

This popular lookout located 10 minutes drive south of Angaston looks across the Barossa Valley, providing stunning views of its expansive vineyards. An added bonus is the Barossa Sculpture Park – an impressive collection of outdoor sculptures – located near its base.

Since 1988 Bruce Elder has travelled to every town in Australia. He has written more than 10 travel books, including the Globetrotter Guides to Australia, Sydney and Queensland; *1015 Things to See and Do in Australia*, *Explore Queensland* and *Explore NSW*. He worked as a full-time travel writer with *The Sydney Morning Herald* and *The Age* from 1996 to 2012. aussietowns.com.au

TRACES

BY ESME MATHIS



Barracks Arch, WA

ON THE WESTERN end of St Georges Terrace in Perth, Western Australia, stands a red-brick archway that resembles a Tudor castle. This arch is the last remnant of the Pensioner Barracks, built in 1866 to house the Enrolled Pensioner Force, or pensioner guards. These were British soldiers employed to guard convicts during transportation to WA. They were retired or injured military personnel, typically aged in their early 20s to late 50s, who'd served in colonial wars in South Africa, Crimea, China, India, Persia, Afghanistan or New Zealand, and received a pension from the British government. More than 1000 pensioner guards arrived in Perth between 1850 and 1868, accompanying the 9000 convicts who arrived in WA during that period.

WA's decision to transition from a free-settler colony to a penal settlement was a controversial one. The colony was established in 1829 by private capital, and its convict-free status made it the attractive choice for Britons wanting to emigrate to Australia. But pioneer life proved far from rosy, and the WA colony's early years were marked by crop failures, labour shortages, a lack of infrastructure and frontier conflicts. From 1833–1834, its population halved as people left for the eastern colonies, and the fledgling settlement continued to flounder during the Australia-wide economic depression of the 1840s.

The future of the WA colony looked bleak. But there was a practical solution to improving its workforce and infrastructure: bring in convicts to work on farms and construct roads, bridges



PERTH

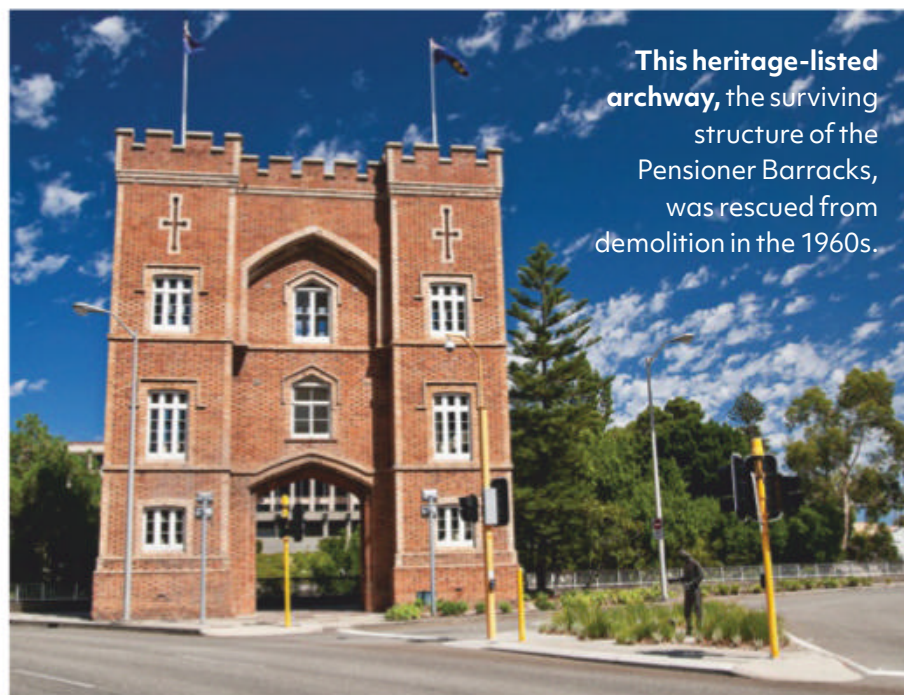
Pensioner Barracks (below), built by convict labour between 1863 and '66, was once one of the largest buildings in the WA colony.



and public buildings. Not everyone, however, welcomed this decision. In 1849, Perth's *Inquirer* journal reported "a revulsion of public feeling with regard to the introduction of convict labour ... It was a source of pride and congratulation that Western Australia was free from the moral plague spot that disfigured some of her neighbours". Convicts were seen as a threat to public safety. Employing pensioner guards helped address concerns by increasing the number of soldiers.

On 1 June 1850, the barque *Scindian* brought 75 convicts and 55 pensioner guards to WA. Also on board were 29 wives and some 79 children. It was the first of 37 ships that brought convicts and pensioner guards to WA.

Historic records reveal pensioner guards were as varied and colourful as the convicts they were sent to supervise. Some abandoned their duties soon after arriving in the colony, while others went on to have distinguished careers in WA's nascent police force. Some abandoned their wives and children, leaving them to eke out a living in a colony that offered scant employment opportunities for women.



This heritage-listed archway, the surviving structure of the Pensioner Barracks, was rescued from demolition in the 1960s.

Many abandoned wives, including those who became widows, were sent to Perth's poor houses.

Convicts helped boost the struggling workforce and economy of the WA colony, whose population had swelled by the 1860s to 17,000, which included 9700 convicts. These worked on farms and developed the colony's infrastructure by constructing roads, bridges and buildings such as Government House and Fremantle Prison. In 1866, convicts completed the Pensioner Barracks, a building designed by architect Richard Roach Jewell that included dormitories, 21 married quarters, a wash house, gun room, outdoor firing range, cook house, stables, stores and even a ball court. After six months of full-time service, the guards remained 'on call' and were required to parade a minimum of 12 days each year. They became eligible for a free land grant after seven years' service, so many remained in Australia as free settlers.

The Enrolled Pensioner Force was officially disbanded on 10 November 1880, although some retained employment at Fremantle Prison and Government House. From 1900, the Pensioner Barracks building was converted into offices for the Public Works Department.

The Pensioner Barracks' wings were demolished in 1966, following a controversial move to provide unobstructed views of Parliament House and allow additional space for construction on the Mitchell Freeway, which began the following year.

MORE INFO: enrolledpensionerforcewa.org.au/

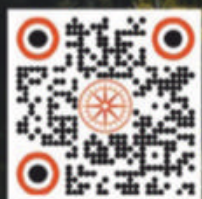
AUSQUIZ ANSWERS

1) Delta variant 2) South Point (Wilsons Promontory) 3) Eyre Highway 4) Two 5) "Larry" the Big Lobster 6) Platypus and echidna 7) False 8) Parramatta River 9) NSW, Tasmania and Western Australia 10) Nailtails: the bridled nail-tail and northern nail-tail 11) Queensland 12) Crayfish 13) Mount Townsend 14) Diamond 15) Lutruwita 16) Norfolk Island 17) Quolls 18) Kalgoorlie, WA, to Port Augusta, SA 19) Five 20) Kingscote 21) Prickly pear 22) Perennial 23) Sir Douglas Mawson 24) Groote Eylandt 25) 1830 26) P. J. Hogan 27) Pygmy right whales 28) Warrock Homestead 29) Joseph Banks 30) Long-billed corella 31) Rosalie Kunoth-Monks 32) Man fern

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